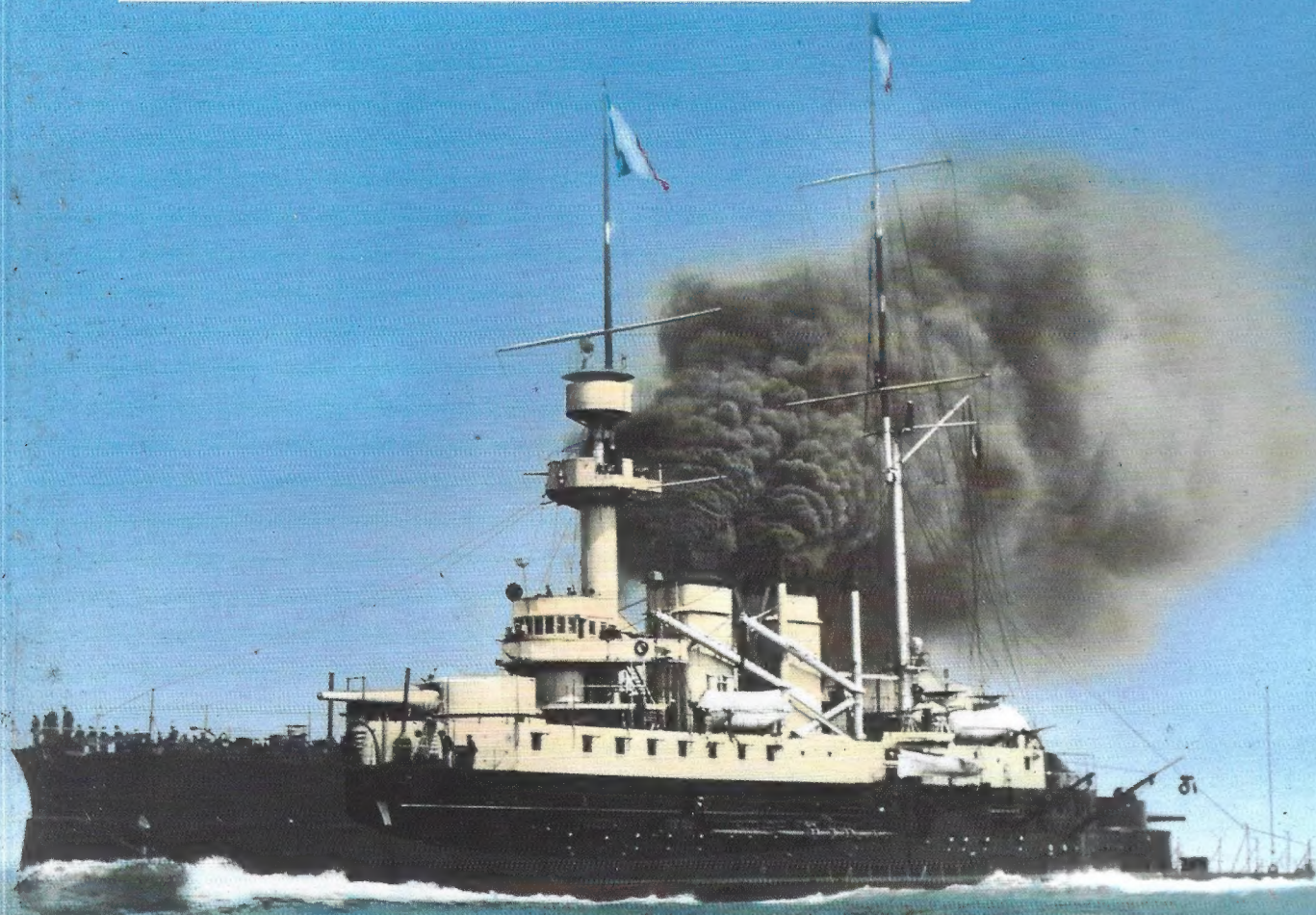


FRENCH BATTLESHIPS 1876-1946

R. A. Burt

Warships
fotofax



Warships

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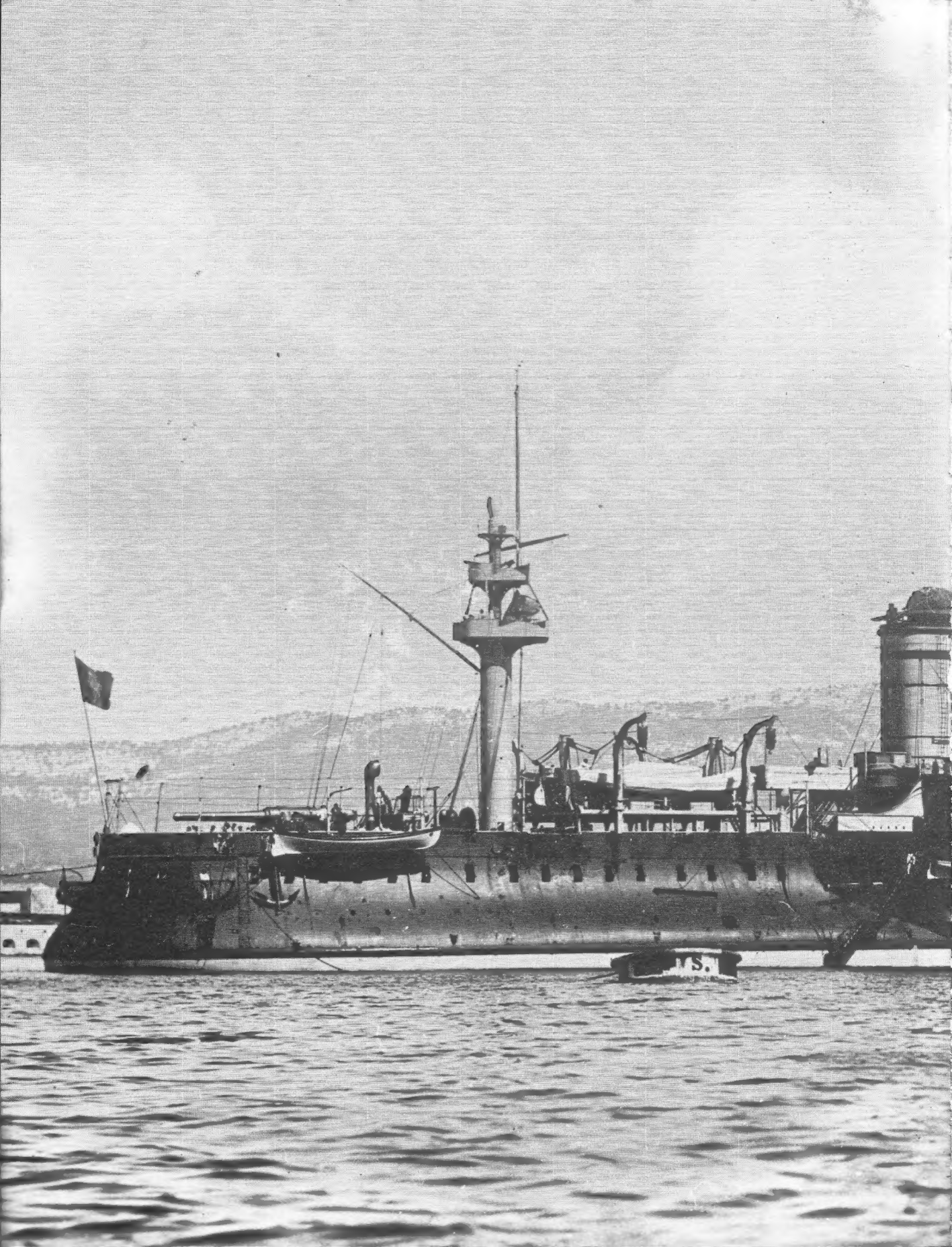
FRENCH BATTLESHIPS 1876-1946

R. A. Burt

Front cover illustration: *Henri IV*. Being fitted with Niclausse boilers (coal-fired), getting up steam caused a great 'show' of heavy black smoke, and she is seen here doing just that, after leaving Portsmouth at the end of the Anglo-French celebrations at Spithead in August 1905. Note her square funnels, high freeboard forward, low freeboard aft, stump derricks and the great length of her 10.8in gun forward on a raised level.

Back cover illustration: *Richelieu* being scrapped at La Spezia, Italy, in 1968. As the memory of war faded and other powers began to lay up their

battleships in mothballs, it was obvious that it was only a matter of time before the French followed suit. Both ships had had an active career throughout the war (even though *Jean Bart* was only 75 per cent complete) and continued to serve after the war, providing covering fire during the Suez operations in 1956. Both ended their careers as training ships and there was, at one time, some hope that *Jean Bart* might be saved as a museum ship given that she was the last battleship to be completed. Sadly this was not to be the case and she was laid up for sale in 1969-70.

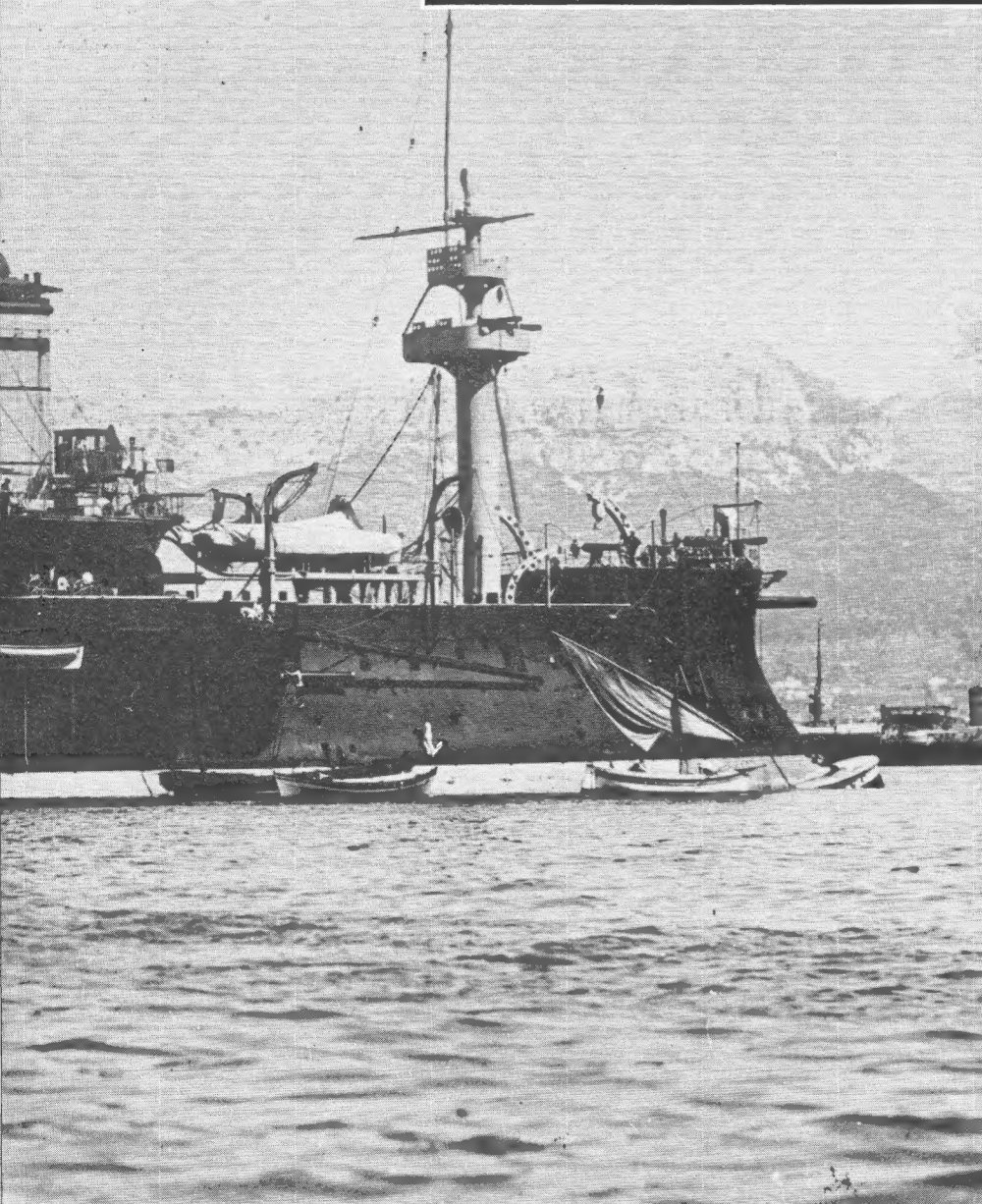


FRENCH BATTLESHIPS 1876-1946

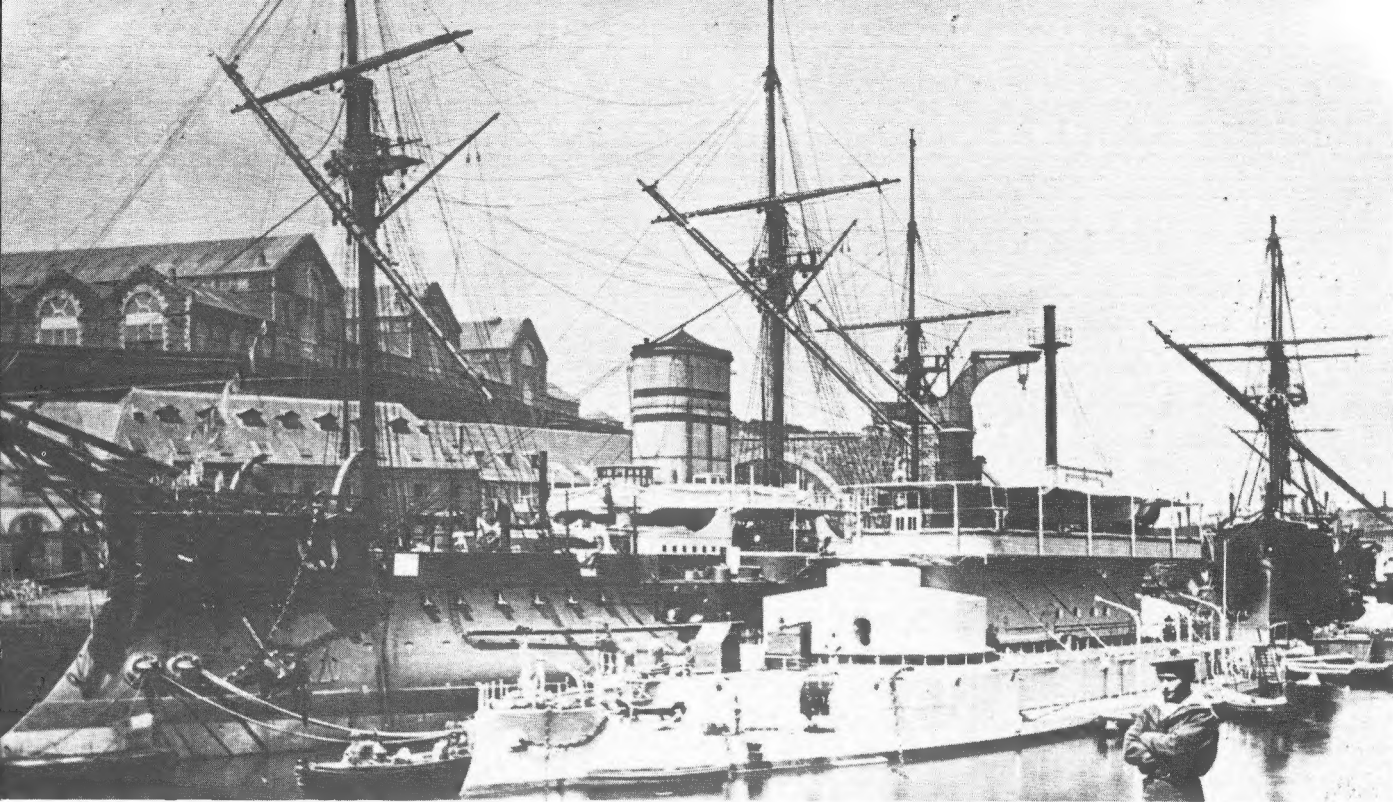
R. A. Burt



ARMS AND
ARMOUR



1. *Rédoutable* c., 1898. Her hull had a grossly exaggerated tumblehome which, in fact, helped counter the weight of the masts. As completed she was not very successful but later, when refitted, and with her rig altered to two military masts, she gave improved performance in general. She was reboilered in 1894 and had four 10.8in guns removed, but these were later replaced by four 9.4in guns. Note the excessive slope to the hull, massive central funnel, and lack of topweight. She ended her career as a coastal defence vessel, but by 1902 was quite obsolete.



▲2

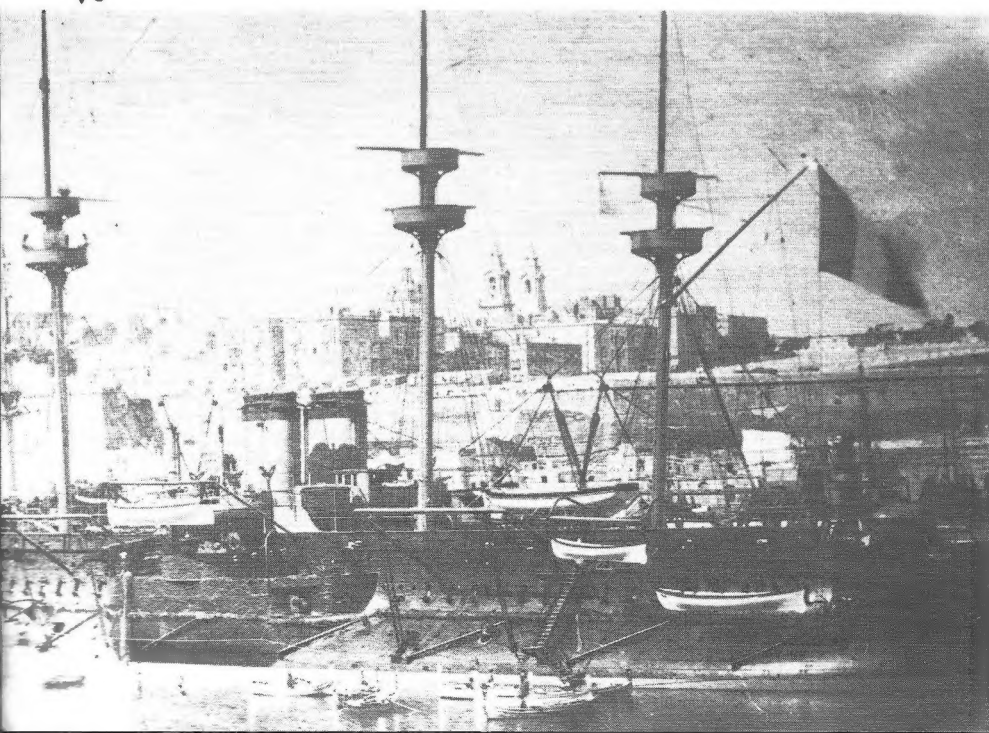
2. *Rédoubtable* in harbour, c., 1884. During the 1870s France, like other major maritime powers, found herself in the doldrums regarding fresh warship construction. In an endeavour to gain ground after the embarrassing Franco-Prussian War, a large naval programme was put forward in 1872. *Rédoubtable*, the first

post-war *cuirassé d'escadre*, was developed from the high freeboard *Océan* of 1868, which carried eight 10.8in guns in barbettes. *Rédoubtable* was fitted with three sail masts (24,000sq ft of sail carried) and had one large, flat-sided funnel amidships. Her gun arrangement, however was controversial in having well-

grouped batteries on the upper deck amidships (six 10.8in), but end-on single guns at the bow and stern. At this time the principle of bow or stern fire was being strenuously debated; opponents objecting on the following grounds: when ships closed with intent to ram, the smoke from a bow gun would obscure the Captain's view at a

critical time. The closing of two ships, and their separating if they failed to ram, would be so rapid that very few rounds could be fired from the bow or stern guns, and with very little opportunity of hitting. In these circumstances, it was thought, bow or stern fire would probably be useless and perhaps injurious.

▼3



3. *Courbet* c., 1892. Developed from *Rédoubtable* in general, but with minor modifications worked into the design, *Courbet* and her sister *Dévastation*, together with *Rédoubtable*, formed the backbone of the French modern maritime battlefleet and worked well together when operating as a squadron. *Courbet* and *Dévastation* were the largest central battery ships ever built, but suffered from the same gun layout as *Rédoubtable* in having many of the guns at such a low command. This photograph shows her rigged with three military tops after her sail rig had been removed.

INTRODUCTION

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During the Franco-Prussian War of 1870–1, the main, decisive battles took place on land; naval forces took little part in the conflict, but ships' crews did assist in the defence of Paris.

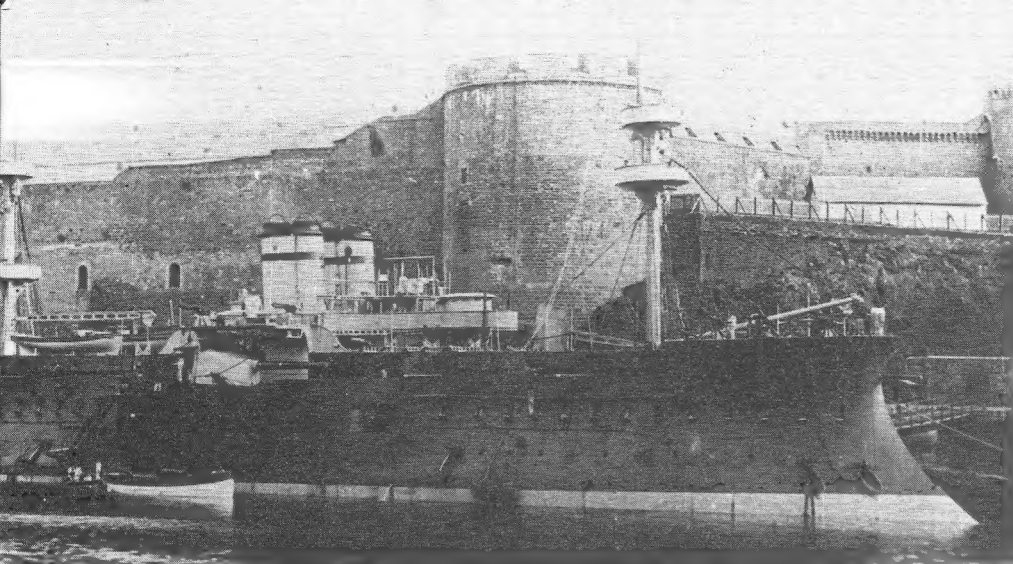
After the war, France was quick to recover, and a steady programme of rearmament was mapped out with the objective of restoring France to her former position as a first-rate military power. Between 1872 and 1886, several construction estimates were drawn up, and approximately £18,000,000 was devoted to new ships. Not for many years, however, did France get herself settled owing to the many short-lived governments, and as a result, the navy suffered, with very few big ships being laid down during these years. Those that did materialize were often imaginative creations, full of flair and quite often innovatory. The French constructors were never afraid to experiment in warship design, but at that time they lacked the experience of modern warship technology and practical know-how.

The first large battleship laid down after the war was *Rédoubtable*, and those that followed were merely developed from her design. The ships featured heavy guns, mostly in an unorthodox layout (lozenge arrangement) and had extremely high freeboard; in appearance they were magnificent, and often looked grim and aggressive – so much so that the Russian Navy often copied the designs and followed the same principles of construction.

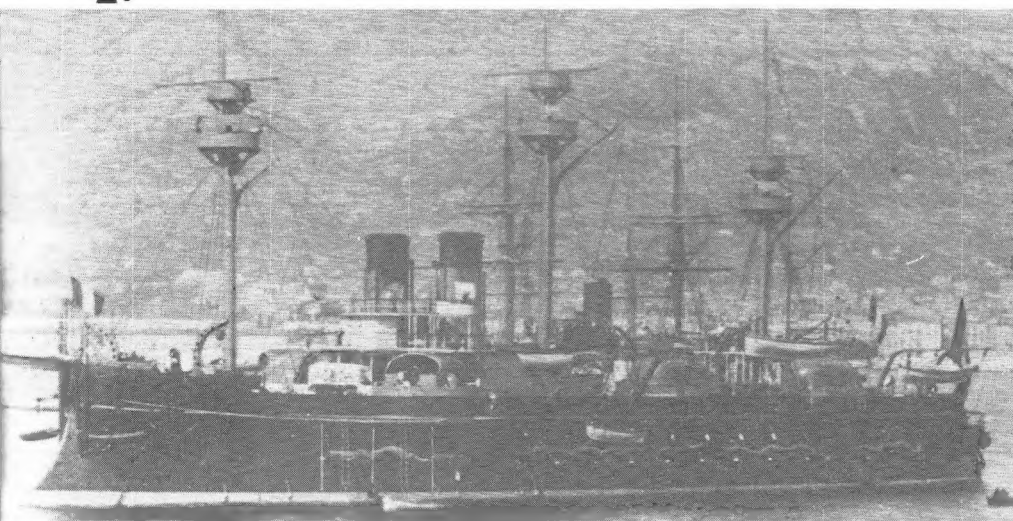
In general terms, the French fleet of the 1870–90 period was more than adequate for its designed purpose, but, during the late 1890s the French fleet was once again allowed to deteriorate. By the early years of the twentieth century some form of homogeneity had been achieved within the fleet, and ships were at last being built in twos or threes instead of the previous 'fleet of examples'. France benefited from waiting and watching the rapid progress of Great Britain and Germany, and then made her own move and took herself into the dreadnought era in 1910. The old predreadnoughts saw action during the 1914–18 war; they fought well but could not be expected to resist the latest weapons of war (torpedoes, mines and armour-piercing shells) against which they could offer little resistance.

After the war, the French Navy was subject to limitation treaties like other nations. Partial modernization of the battle fleet was put in hand, but many of the officers and naval staff of the day were under the impression that the era of the big ship was doomed, and again the French fleet suffered accordingly. Only three ships were launched in the 1930s, and the performance of the French capital ships during the Second World War was less than glorious. *Bretagne* was sunk at Ovan on 3 July 1940 by British gunfire; *Provence*, *Dunkerque* and *Strasbourg* were scuttled at Toulon on 27 November 1942.

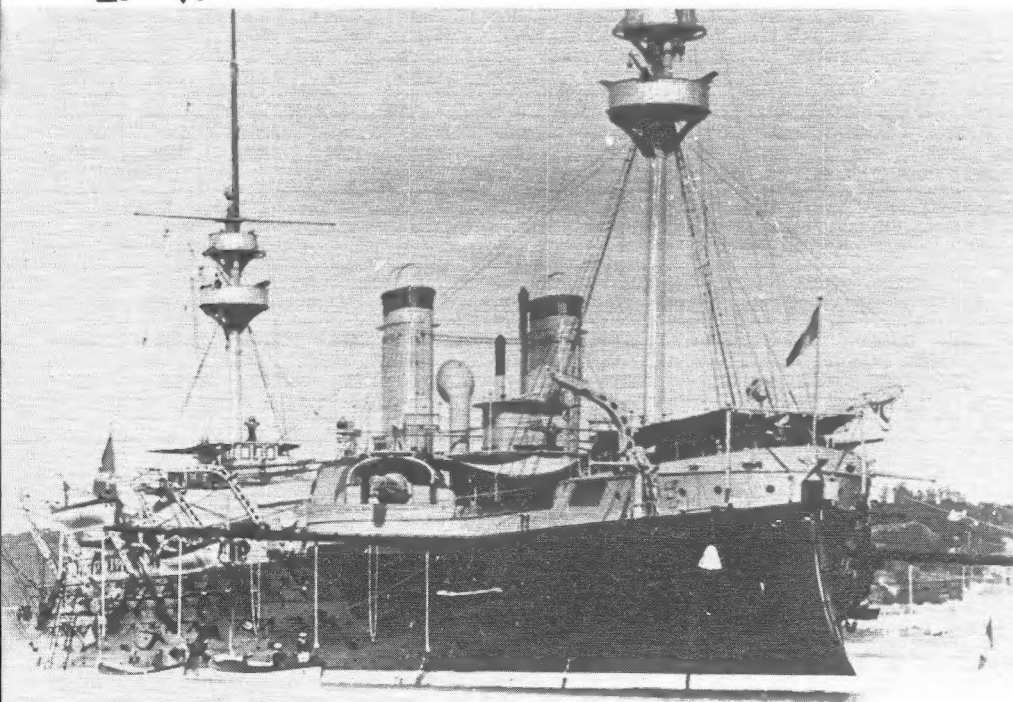
France's last two battleships, *Richelieu* and *Jean Bart*, the latter incomplete, were attacked by Allied forces, but survived the war. Modern ships, they reflected none of the faults evident in their predecessors and were among the best of the world's last generation of battleships.



▲ 4



▲ 5 ▼ 6



4. *Courbet* as reconstructed in 1903, with two military tops. Owing to the rapid pace of development abroad, these ships quickly became obsolete, but they both received some modifications to keep them in fighting shape. The main armament was altered considerably over a period of time. The 13.4in guns never proved adequate, and were later removed in *Dévastation* and replaced by a 12in model. These too were later removed and her final armament in 1901 was four 10.8in in the main casemates, two 9.4in on the beam above the casemates, and one 3.9in on the quarterdeck and forecastle. *Courbet* was modernized in 1898–1901 and *Dévastation* from 1900 to 1902.

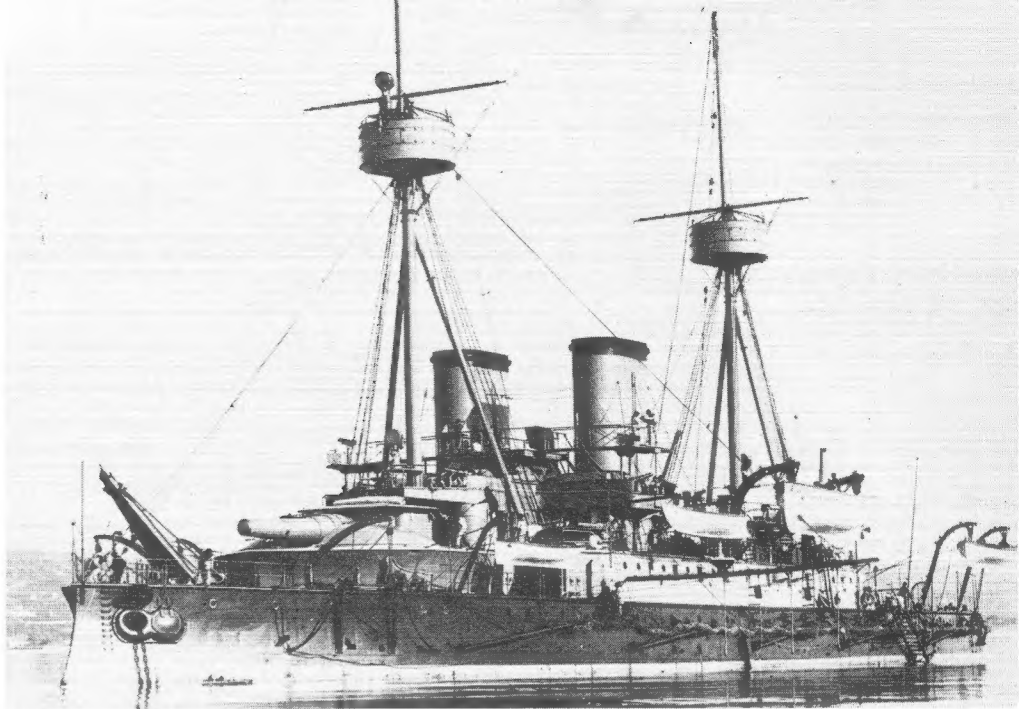
5. *Amiral Duperré*, with three masts and double fighting tops, c., 1894. Still following the lines of *Rédoubtable*, but with a different arrangement for the main armament, *Amiral Duperré* was fitted with 13.4in guns in barbettes located in two single positions aft, and one on each beam (P&S) forward. She was fitted with a 6.3in bow chaser gun, but the after gun as in *Rédoubtable* was discarded. Her freeboard was extremely high; which gave exceptionally good sea-keeping qualities, but the argument against such a high freeboard was the amount of target it offered. In line with many of the older battleships, she was given limited improvements. Her machinery and boilers were overhauled and her 13in guns were replaced by a new model.

6. *Amiral Duperré* c., 1899. Being some 2,000 tons heavier, having larger guns, thicker armour and a slight increase in speed over *Rédoubtable*, *Duperré* was the better ship. She was earmarked for refit in 1898, but this was deferred and she never received the modernization given to *Courbet* and *Dévastation*, and was quickly discarded from the front line. Her main armoured belt of 21¾in was adequate for the day, but the very narrow width as fitted (7 feet 7 inches with only

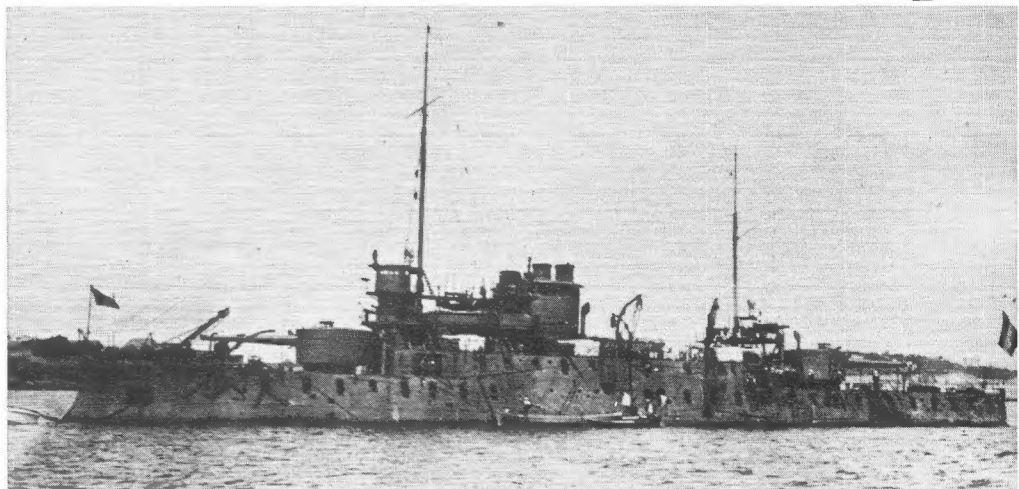
18 inches above water) meant that the entire belt was usually submerged when at sea. This design fault was a feature of many foreign battleships during this period.

7. *Indomptable*, as completed. Experiences in the Franco-Prussian War, when it was found necessary to cover coastal fortifications, showed that a smaller type of vessel would be as satisfactory as a large one in covering such operations. Looking abroad to the British *Cerberus* and *Glatten* coastal monitors, the French designers set about producing their own version. The result of this was *Caiman*, *Indomptable*, *Requin* and *Terrible*. As completed, *Caiman*, *Indomptable* and *Requin* were very much alike, but *Terrible* was fitted with four small funnels amidships, making her appearance rather unique.

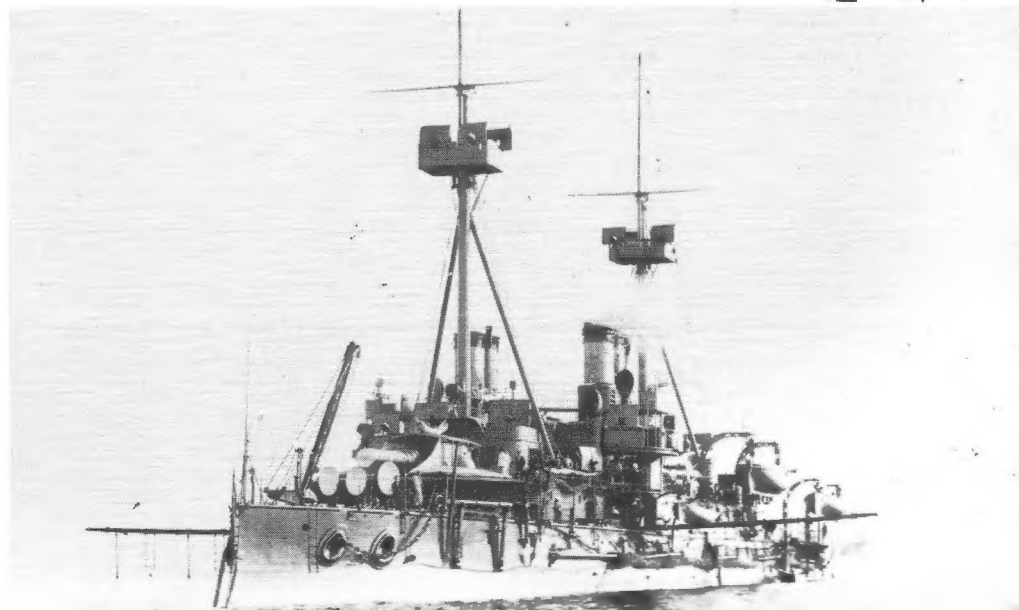
8, 9. *Indomptable* as refitted, c., 1906, and *Terrible* as completed. A sketch representing *Caiman* is to be found in the Royal Navy's Ship's Cover of *Collingwood*, and it seems that the DNC, Nathaniel Barnaby, based his design for *Collingwood* on the *Caiman* layout. Leaning towards the idea of great offensive rather than defensive qualities, the *Caiman* group, as completed were armed with gigantic 16.5in guns, but because of their limited dimensions, the ships could only muster two such weapons, one forward and one aft. In practice the guns were incredibly slow in their rate of fire and were replaced by smaller pieces during the refits of 1900–03.

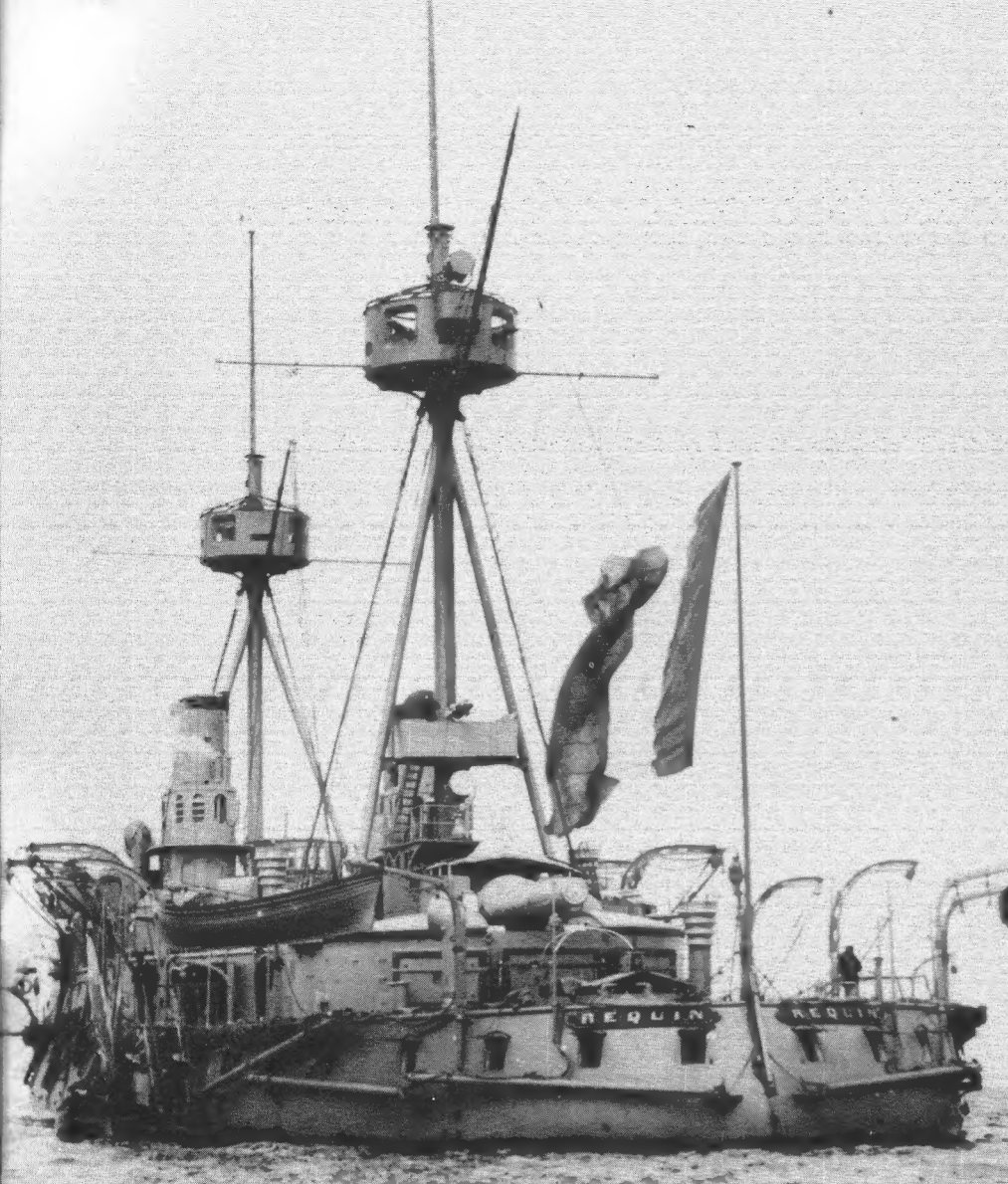


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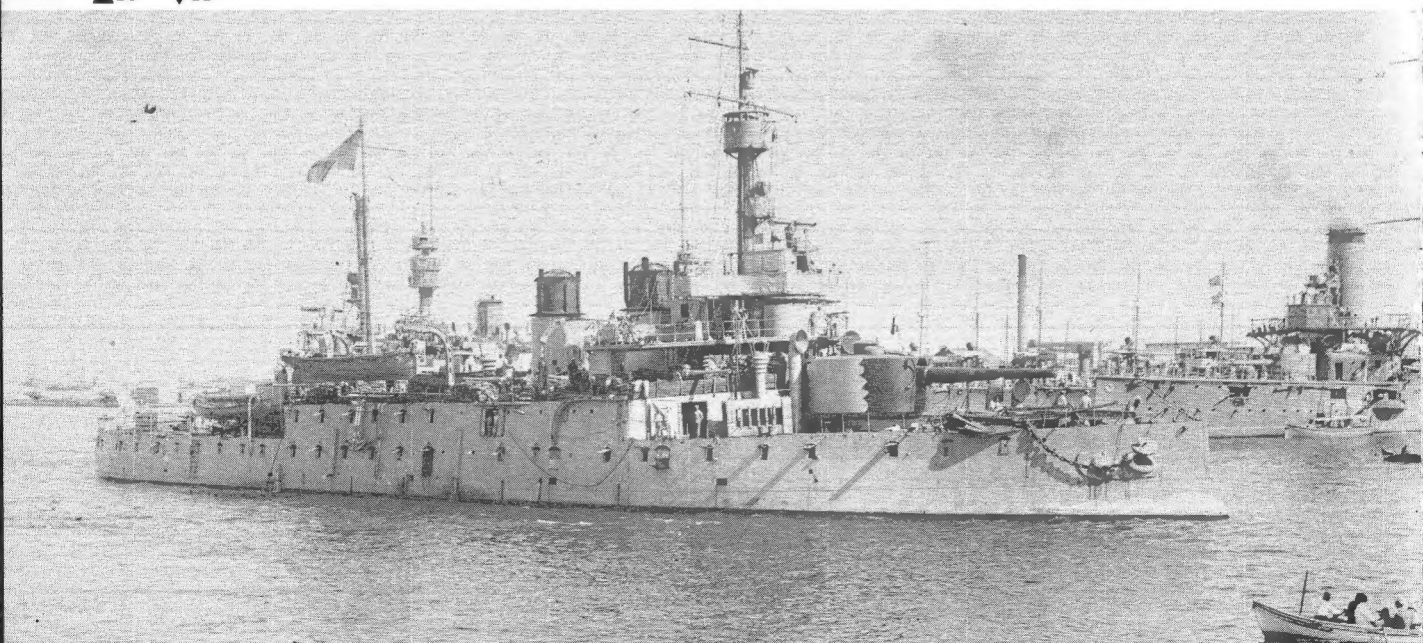
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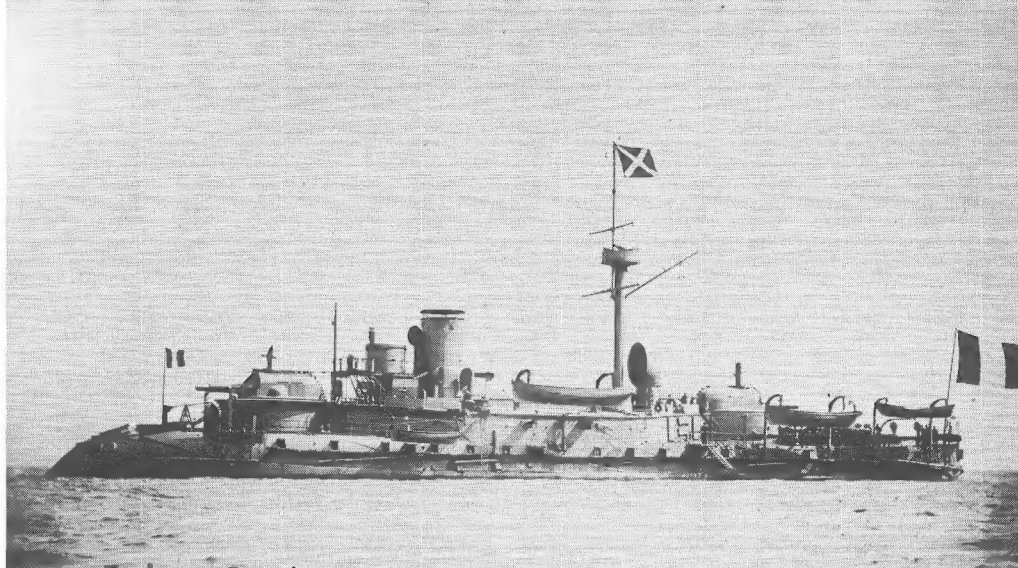


10. *Requin* as completed, c., 1887. During their reconstruction, they were modernized to varying degrees—some receiving more attention than others. *Requin* was reconstructed along the same lines as *Furieux* and completely remodelled. She was re-armed with two 10.8in, six 3.9in and ten 3pdrs (as were *Caiman* and *Indomptable*); *Terrible*, the odd one out, was fitted with two 13.4in and four 3.9in. *Requin* received some improvements in armour distribution, but any ideas of complete re-armouring were ruled out because of costs and the age of the ships.

11. *Requin* at Port Said, November 1917. Note camouflage on turrets. In reserve before hostilities began, and used as a training ship for some time, when war broke out in 1914 she was the oldest vessel to serve and see active service. She was stationed near the Suez Canal and used on several occasions to bombard the coastline.

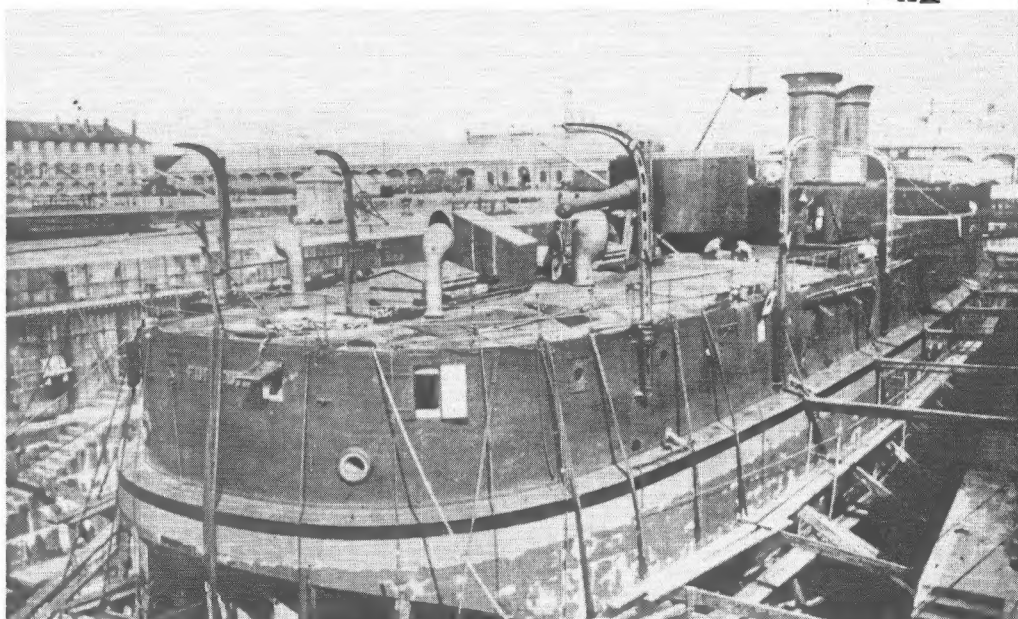


12. *Furieux* as completed, c., 1886–7. Greatly favouring the coastal defence type, the French believed that these smaller ships could back up a fleet action after the main forces had suffered casualties. Moreover, it was envisaged that the type could more than overpower any cruiser foolish enough to engage them. To fulfil this requirement, France laid down several small coastal vessels varying from 2,000 to 7,000 tons. *Furieux* was laid down in 1878 and featured some novel ideas with her whale back hull and low freeboard forward, raised hull aft and high gun positions.



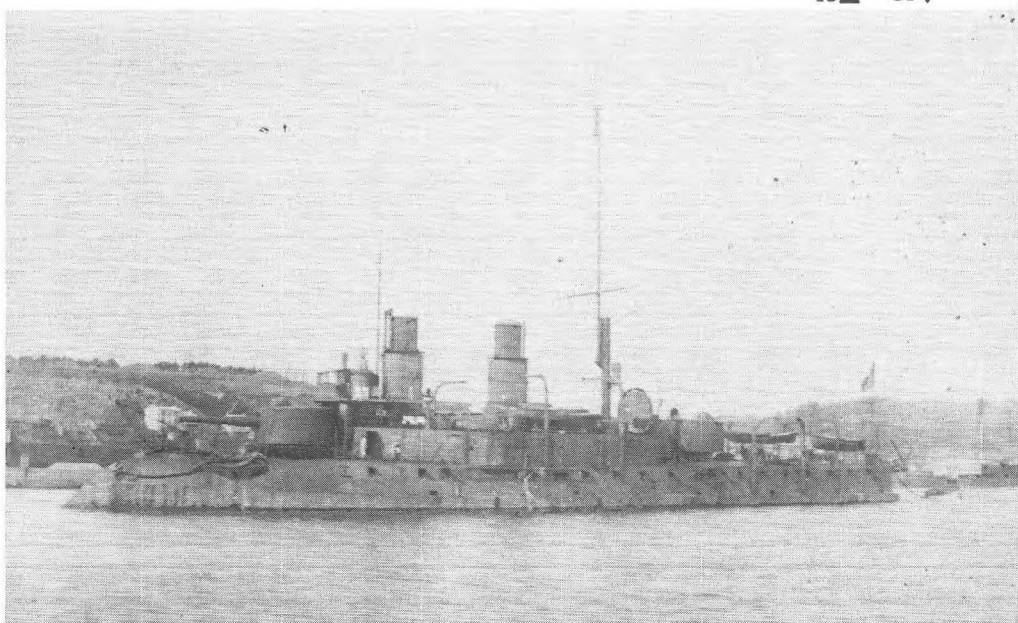
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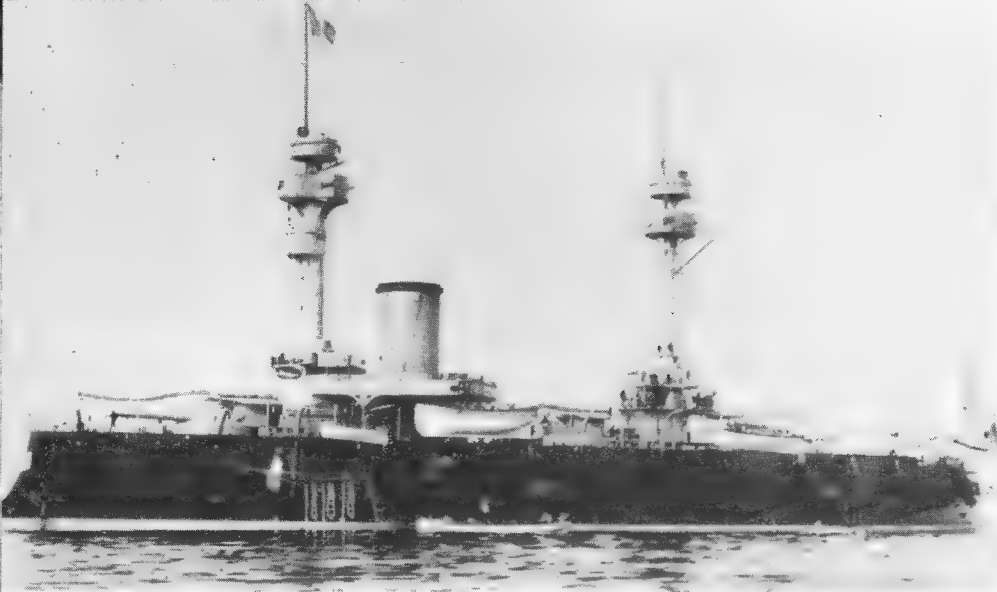
13. *Furieux* seen under reconstruction, 1903–5. During the rebuild, she was reboilered, fitted with new machinery and her 13.4in guns were replaced by modern 9.4in. Her protection was not enhanced to any great extent, but there were improvements, because although the French still favoured the type as late as 1903, they realized that these particular vessels were long obsolete, even after modernization.



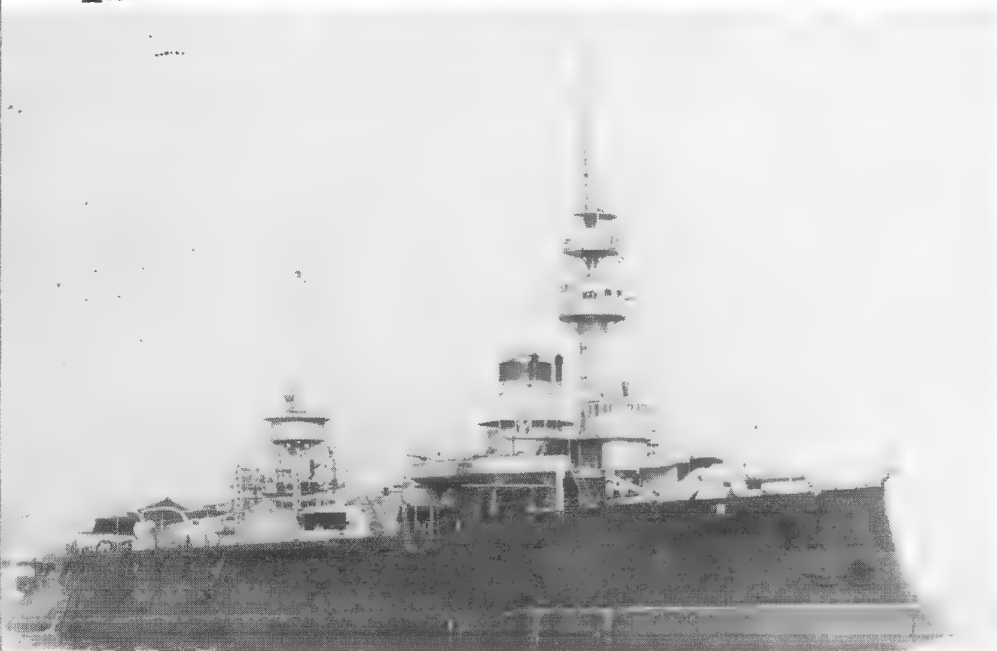
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14. *Furieux* c., 1908. When *Furieux* left dock after her reconstruction, there was little evidence of her former appearance – she was in all essentials a new ship except for the hull which still had the low freeboard whale back bow (exceptionally wet in a seaway). She never saw action in the war, having been laid up and sold in 1913. Note the twin funnels and high, rounded turrets.

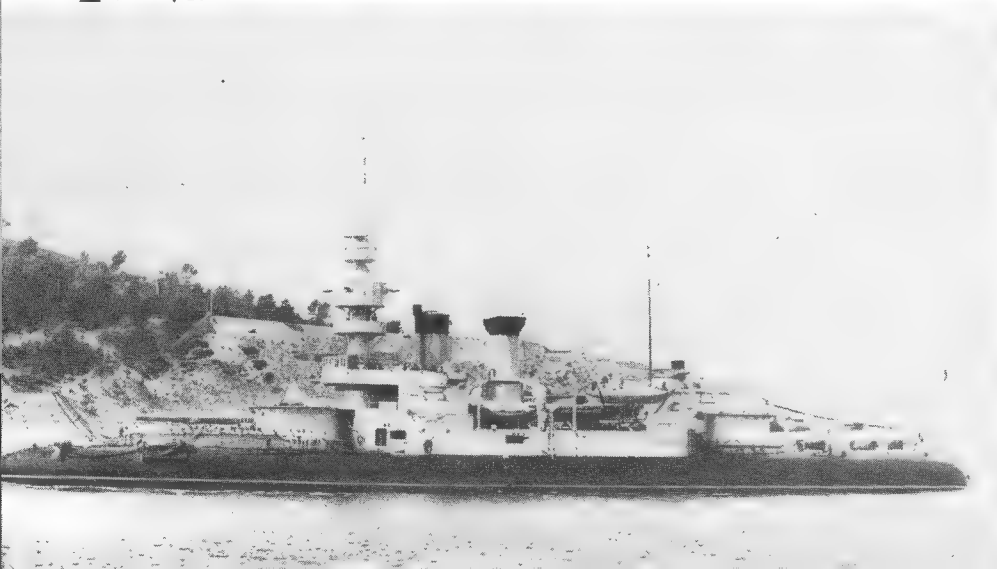




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15, 16. *Formidable* shortly after completion. Based on *Amiral Duperré* but with improved features, *Formidable* and *Amiral Baudin* were good ships in most respects. Only three barbettes were fitted instead of four (as in *Amiral Duperré*), but they had the advantage of being located on the centreline, which gave better arcs of fire than those fitted in a lozenge-shaped disposition. There were many differences in appearance, the most notable being the funnel which is seen after being given a tall top-hat in *Amiral Baudin*; as completed she had a very squat funnel almost hidden by the flying bridge and superstructure. Note also that her mainmast had been reduced in size. Neither ship was given any great improvements over their lifespan and they had disappeared from the active list long before the First World War.

17. *Jemmapes*, c., 1903. Enhancing the good qualities of *Furieux*, two ships were proposed for the 1890 programme: *Valmy* and *Jemmapes*. Being slightly larger in most respects they proved much more successful than *Furieux* and were more than just coastal defence vessels; in fact they were very adequate for most duties in the Channel and Mediterranean. The unfortunate repeat of the whale-shaped bow was extended throughout the whole length of this pair which did hamper their sea-keeping abilities to some extent. Nevertheless, *Jemmapes* and *Valmy* always made a good impression when serving with the fleet. Note the length of the 13.4in guns and the whale-back hull with bow and stern tumblehome.



18. *Hoche*, c., 1895. As completed, the single *Hoche*, built for the 1889 programme, was one of the worst examples of too much in one design ever built for the French Navy. Her grossly exaggerated upper works caused severe problems of topweight and made her metacentric height and stability very low indeed. Her upper works were in three levels with

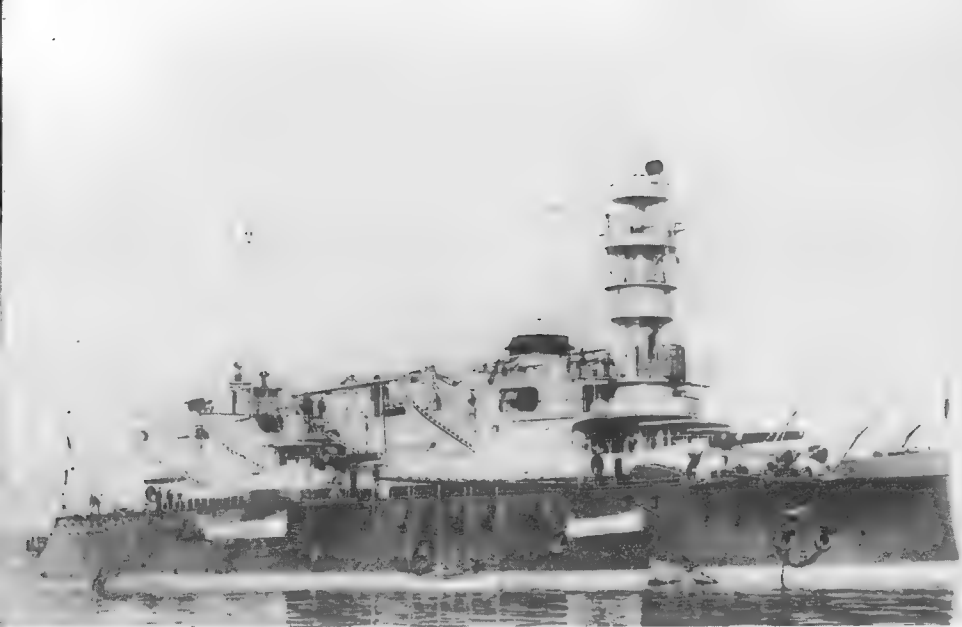
the ends actually reaching over the main armament. She was also given inadequate freeboard and this, coupled with excessive superstructure, etc., caused her to roll to alarming degrees. The photograph shows her in her original condition before reconstruction.

19. *Hoche*, c.; 1902, after reconstruction. She was fitted

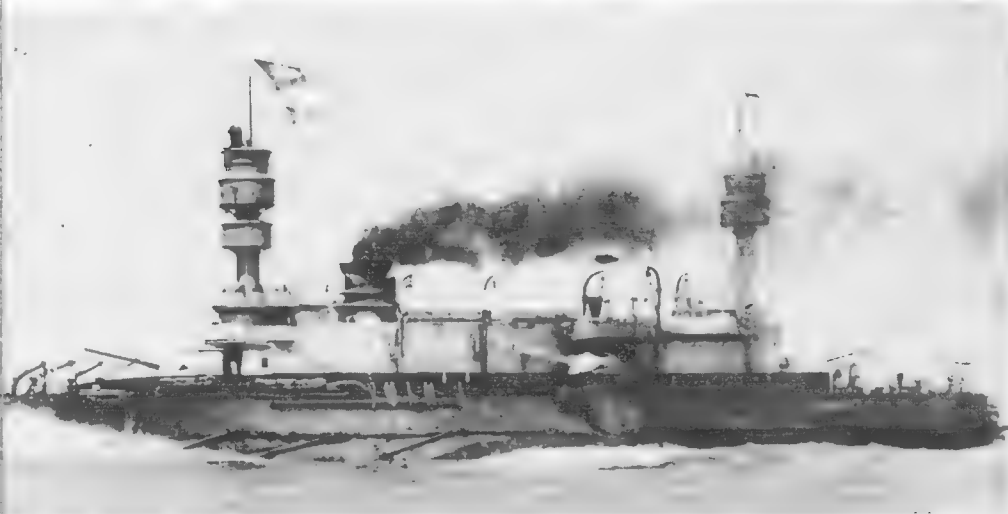
with two Canut, hydraulically operated turrets (one forward and one aft) housing 13.4in guns, but her wing armament of 10.8in guns was mounted in barbettes. She was partially rebuilt in 1899 when some improvements were made to her stability and much of the topweight was removed. She was reboilered with Belleville boilers and her single funnel

was replaced by twin athwartship uptakes. Her main armament was retained, but her secondary armament was reduced. She made 15.9 knots on her reboilered trials in 1900, but it is stated that her bows were completely awash, and her forward gun, only 15 feet above the waterline was almost swamped out.

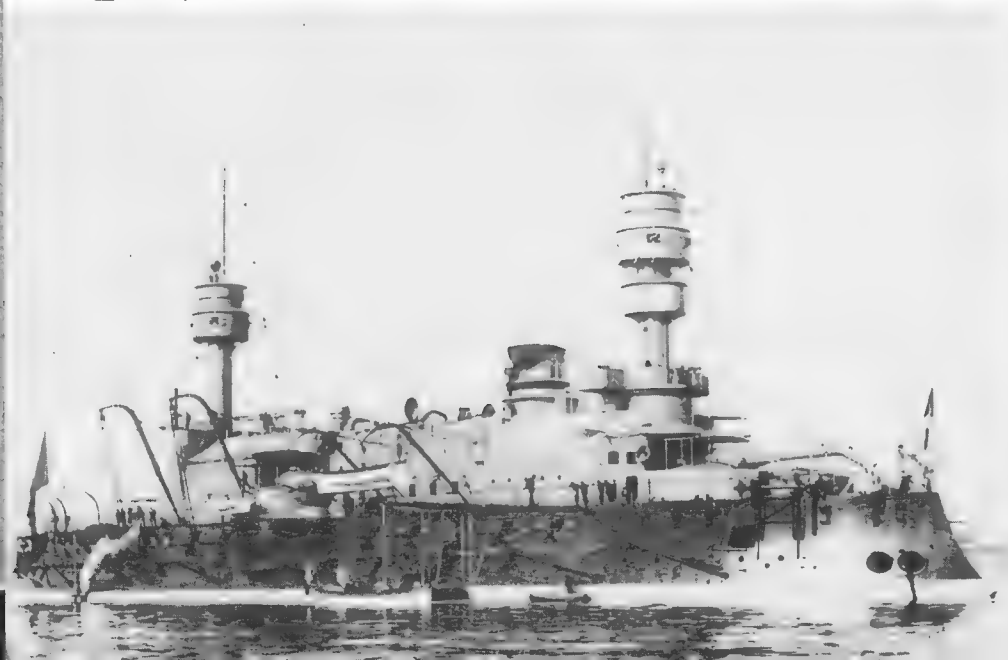




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20. *Magenta*, c., 1896. Laid down as part of the 1883 programme, *Magenta*, *Neptune* and *Marceau*, as sisters were practically identical although *Marceau*, because of her reduced upper works, was the better ship. The stability of *Magenta* was stated to be less than that of *Neptune* and in fact, *Hoche*. On trials, when, *Magenta* turned sharply at full speed she heeled at least 14 degrees. British constructors viewed these, and other French ships of the same type, with some doubt, but the renowned naval historian W. Laird Clowes made this comment: 'The French Mediterranean Fleet is a magnificent force, and every French naval officer is aware and proud of the fact. That individual ships could be improved upon needs no admission. Every modern ship is a compromise. But merely because *Magenta* and some other vessels have large amounts of superstructure and gear above it that would be terribly productive of splinters in action, and because, in certain circumstances they roll, as all vessels must, the ships do not deserve sweeping condemnation; and, as far as I can see and learn, that is their most conspicuous fault.'

21. *Neptune* on her preliminary trials, 1894. Still sporting the lozenge arrangement of heavy guns, which the French favoured so much, gave them a broadside of three guns on each beam, whereas most British designs of the day gave four. It is recorded that for *Magenta* and *Neptune* the superstructure height was excessive and burdened the hull unnecessarily – the fact being that it did not need to be there at all. When the helm was put over on trials *Neptune* heeled more than 14 degrees which although excessive was not considered dangerous by the French designers. To fight the guns in such conditions however, would have proved extremely difficult.

22. *Neptune* shortly after commission, 1895. Note the funnel lids. In appearance

Magenta and *Neptune* were very alike except for the top hat on the funnel in *Neptune*, and her heavier foremast. *Magenta* and *Marceau* had their mainmast reduced in size after completion and were the better for it. They were very impressive ships with a powerful profile, but in service proved difficult to handle and were unwieldy in a seaway.

23. *Marceau*, c., 1889.

Although a sister ship, *Marceau* was slightly smaller than the other two of the *Magenta* class, and had less topweight. In practice *Marceau* was the better of the three ships and rolled less than *Magenta* and *Neptune*. In appearance she was not unlike *Formidable*, but with a lozenge arrangement for the main armament instead of centreline barbets. She underwent only limited modification (boiler renewal, bridge details, etc.) and was obsolete long before the war. Her services were retained, however, and she was not sold for scrap until as late as 1922, being used as a store ship and for some accommodation purposes.



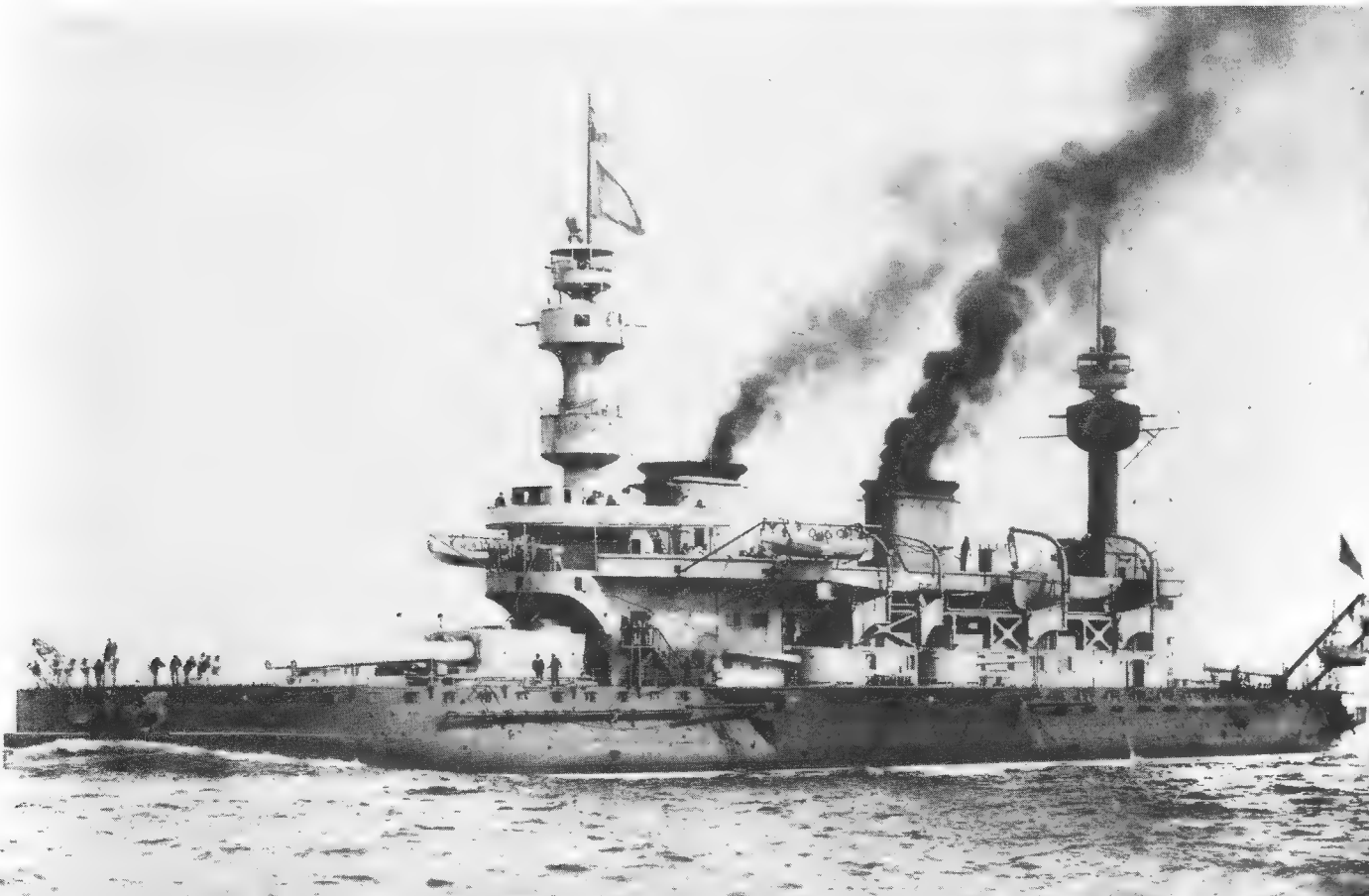
24. *Brennus* as completed, seen during trials, 1894. Yet another experiment in *Brennus* and no sign of any homogeneity within the battlefleet. A most formidable appearance but not very successful in practice. Fitted with huge, twin flat-sided funnels and high flying decks,

she was a most conspicuous vessel when alongside others in the fleet. Her good points were the heavy gun turrets and secondary guns also in turrets, affording protection for the crews, reasonably high freeboard and a good turn of speed. A curious arrangement

was that the forward heavy guns were mounted in pairs (two 13.4in) while the after fitting was a single gun. She was one of the first French battleships to have Belleville boilers, but suffered from many defects in that department during her early period of service.

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25. *Brennus* after her large refit, 1901. She was one of the first French battleships to dispense with the ram, her bows

being plough-shaped. Her stern, however, was much more pronounced, in fact, almost like a ram. Partially refitted, her

mainmast was reduced to a pole; her funnels were reshaped, most of the topweight was removed and she received

limited modifications elsewhere. Although surviving until 1919, she did not take any active part in the war.

▼26



26. *Bouvines*, 1905. *Trehouart* and *Bouvines* belong to the coastal defence group of ships and were constructed along the same lines as *Furieux* and *Jemmapes*, but severe criticism of the low freeboard in those two classes led to improvements in the *Bouvines* class. The Minister of Marine decided that if a high freeboard vessel of small dimensions could be designed it might be of use for operations other than coastal work. The hull was therefore raised forward, and as this alteration entailed increased displacement, which the authorities were not willing to accept, it was necessary to reduce the calibre of the main armament and adopt 12in guns instead of 13.4in as in the original design.

27. *Amiral Trehouart*, c., 1900.

Note the hull lines and single funnel. Although sister ships, their appearance was strikingly different most noticeably the single funnel in *Trehouart* and twin funnels in *Bouvines*, but there were other minor differences that were easy to spot. As completed, they suffered from heavy rolling and were later fitted with bilge keels which made them much steadier and capable of sustaining prolonged periods of rough weather.

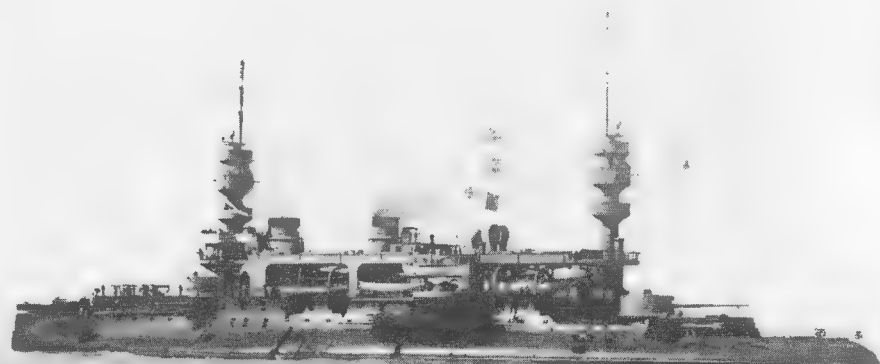
28. *Charles Martel*, c., 1900.

Laid down under the 1891 programme, which was intended to replace some of France's ageing battlefleet. The principal armament was disposed in four revolving turrets, in a lozenge-shaped layout. The forward and after turret had 12in guns, and those amidships were 10.8in. All were placed at a suitable height from the waterline, but the same could not be said for the secondary 5.5in guns which were placed at main deck level, and were so close to the waterline that they were practically awash when the ship was under way. *Charles Martel* was one of the last French battleships to have her main armament positioned in the lozenge layout. A degree of success was accomplished with the design, and in fact the following *Jaureguiberry*, *Carnot*, and *Bouvet* were all variations on the same theme.

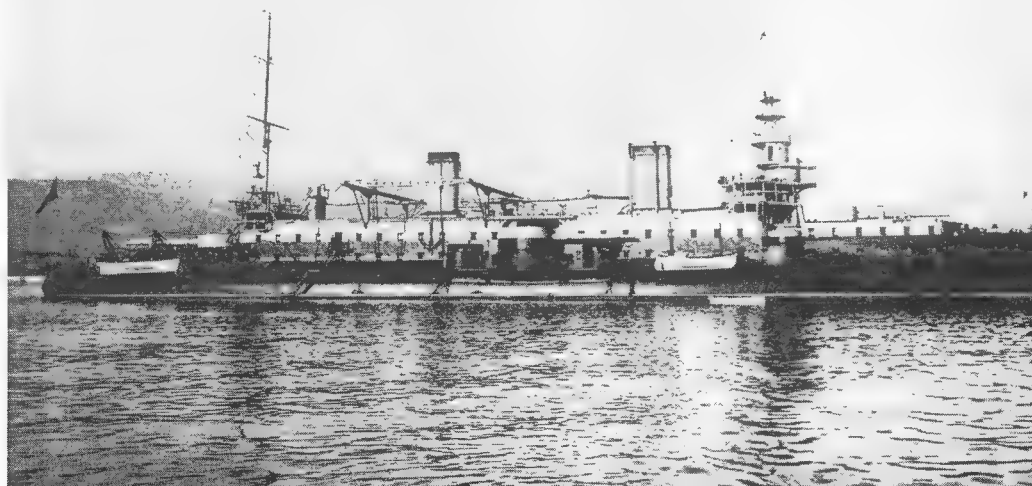
29. *Carnot*, c., 1902. Very similar to *Charles Martel* except for the lack of a flying deck, tubular mainmast and top-hats to the funnels. As completed, *Carnot* proved herself a better ship than *Charles Martel*, the main reason being the lack of unnecessary topweight.



27▲



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30. *Carnot*, c., 1900. Note the huge square-shaped funnel, the rows of scuttles and the opening in the hull, showing the lack of protection above the main belt. Also note the tubular bridgework forward, which is built up around a pole mast, and that the forward main gun is raised and placed on the flying deck level rather than on

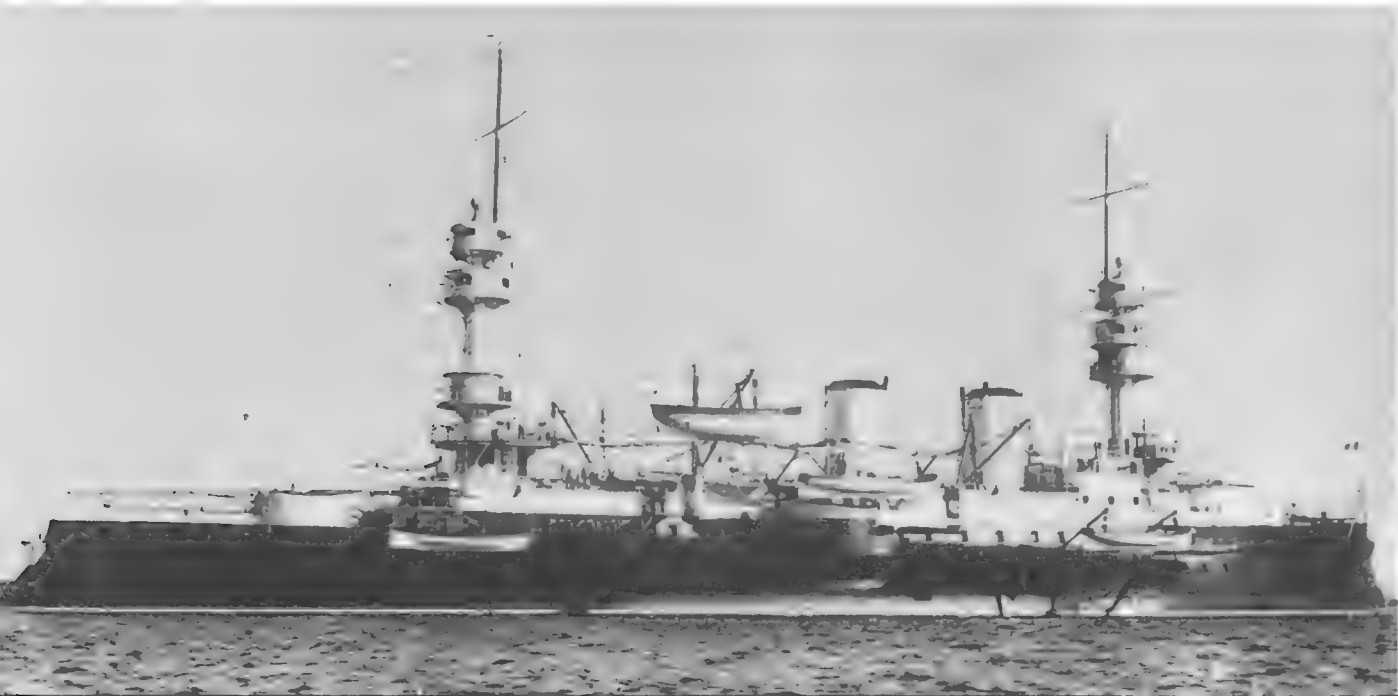
the forecastle, giving them an exceptional high command. She was as good as any of the other French battleships built in the same period, and was kept in service for many years. In fact, she was still on the effective list in 1914, but took no active part in the war.

31. *Jaureguiberry*, c., 1899.

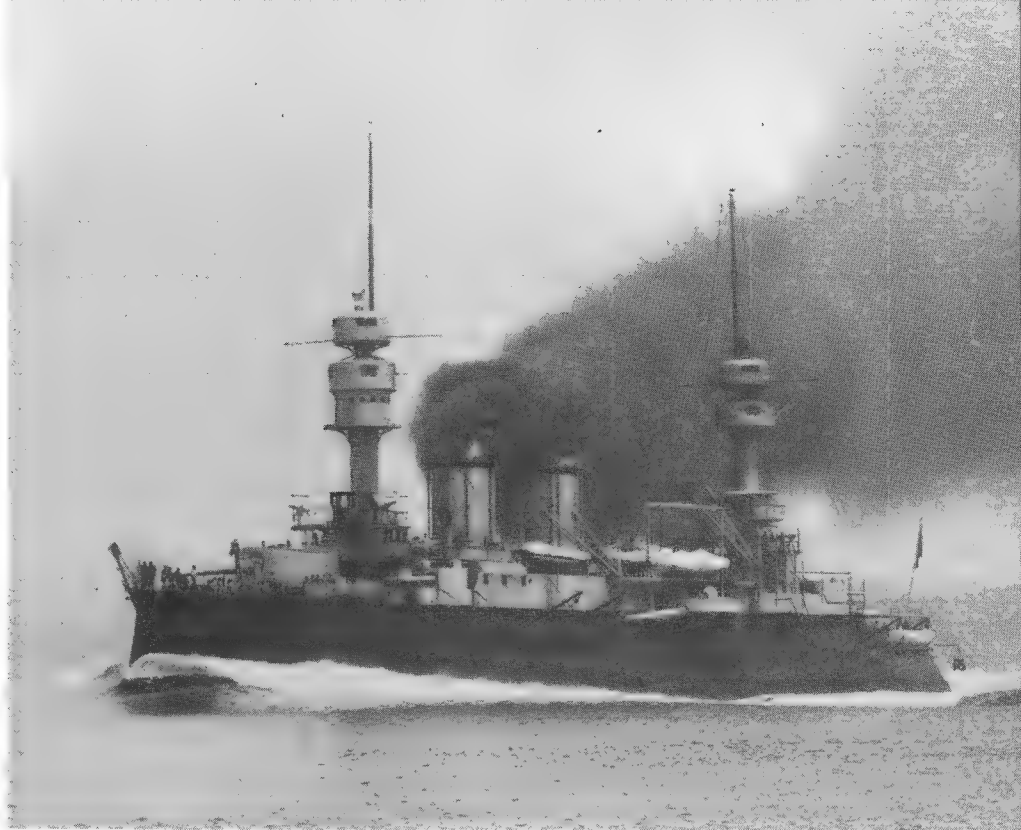
Designed by M. Lagane who had much success when he produced the Chilean *Capitan Prat*, but by substituting the 9.4in guns of that design for 12in and 10.8in he was able to produce a much more powerful vessel in *Jaureguiberry*. As completed, she was well armed, protected and had a fair speed for the day. The main fault

within the design was the persistence with the lozenge arrangement for the main armament which produced excessive weight amidships because of the turrets and guns located there; in *Jaureguiberry* they were particularly overhanging and produced a heavy roll in a seaway.

▼31



32. *Jaureguiberry*, 1905. British designers favoured *Jaureguiberry* and saw her as one of France's best to date. They liked the complete armoured belt and the fact that some of her armament was electrically operated. They also approved of the fact that she was not encumbered with the usual excessive topweight which had become such a familiar feature of French battleships over the last ten years, and which struck most foreign designers as a major source of danger to the ship, and an illusory protection. When viewed bow on, *Jaureguiberry* showed off her excessive tumblehome hull, but in fact this had a damping effect on the topweight and went some way towards securing the ship's stability. This is a most impressive port bow view of the ship as she gathers speed on leaving port. Note the 'show' she is making, the bow wave she is producing and how she is rolling slightly.



32 ▲

33. *Massena* at Portsmouth, 1905. She was developed from the basic *Charles Martel* layout, with alterations to the hull, funnel and gun arrangements. Gone was the high freeboard and the smooth running

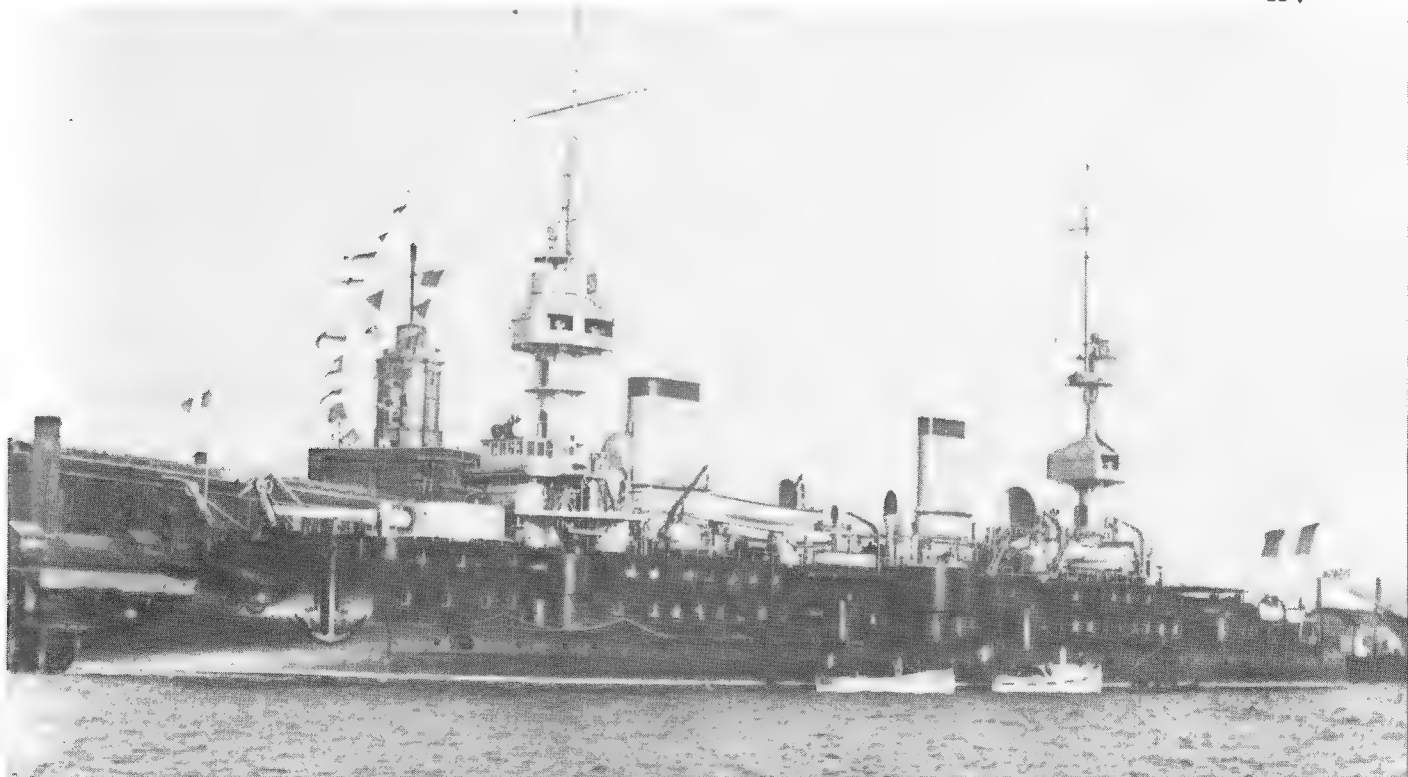
forecastle which was replaced by a broken, messy decline forward and amidships, and an exaggerated bow ram. In fact, most of the features of *Massena* amounted to 'too much' within one design. Although the midships 10.8in guns were

slightly separated, there were problems with blast effect for all the guns in the area because of the close proximity of the secondary 5.5in turrets.

She was a fine-looking ship with a somewhat aggressive fighting appearance which the

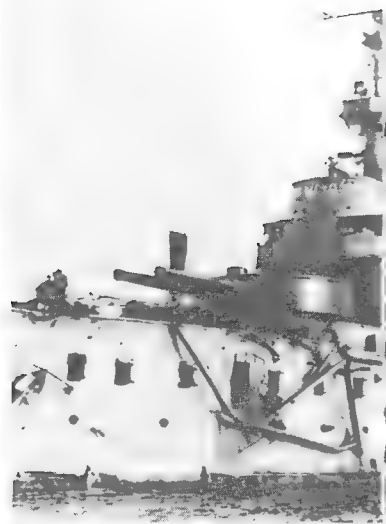
French Navy seemed to enjoy producing, but she was not very successful because too much had been attempted at one time, but she did show what could be achieved when producing variations on the same design.

33 ▼





▲ 34



34. *Massena* A novelty in the design was the ram snout which, in fact, was not a ram at all, but an ingenious method of reducing the forecastle length in order to stop blast pressure from the 12in gun muzzle when firing dead ahead. Quite obsolete by 1914, she was stripped down to the hull and scuttled as a breakwater at Sedd-el-Bahr during the Dardanelles operations.



▲ 35 ▼ 36

35. *Bouvet* as completed, 1899–1900. Trying to break away from the *Charles Martel* design, but unable to find a suitable alternative, *Bouvet* was produced. By reducing the size of the massive tubular masts and cutting down on the upperworks a better design was accomplished. Although her hull was better subdivided than in previous designs, there were only partial longitudinal bulkheads within the boiler room area, and during the attack on the Narrows forts in the Dardanelles she ran across a mine laid by the Turks and quickly took a list. Lack of adequate subdivision ensured that she capsized in less than two minutes, and took with her most of the crew who were desperately trying to counter-balance the list.



36. *St. Louis*, c. 1904. Looking across the Channel at Great Britain and the classes being produced at the time (*Royal Sovereign* and *Majestic*), it was seen that both types featured

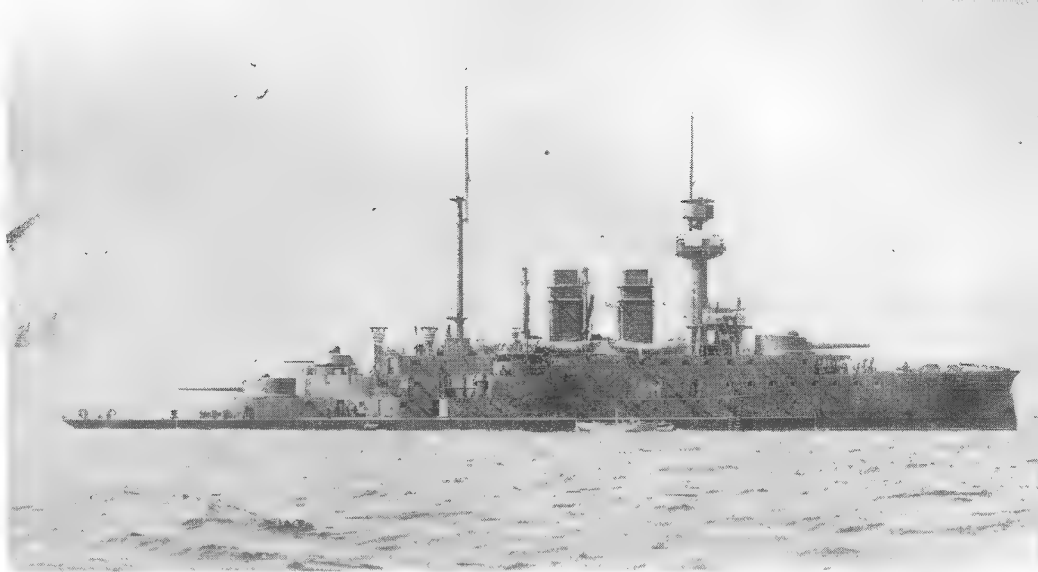


37▲

many ships (7 and 9 respectively). France decided that it was time to produce a group of vessels rather than the 'examples' that had been the case for many years.

Charlemagne, *St. Louis* and *Gaulois* were all completed in about 1899–1900 and proved quite successful. The persistence with great topweight, tubular masts and heavy flying bridgework spoilt the design of an otherwise suitable layout. Twin guns were featured instead of singles which had been a French feature for many years, and a high freeboard along the whole length of the ship was included. The armoured belt was 14in thick, but as usual was limited in area, and left most of the hull completely unprotected. The hull shape was not so exaggerated as in previous designs.

37. *Gaulois*, 1915. All three served during the war and took an active part at the Dardanelles. Given refits beforehand, when some of the top hamper was removed, they bombarded the coastline during the operations against the Turks. While firing on the Narrows forts, *Gaulois* was severely hit and badly holed forward and had to retire from the action. She was able to make dock for repairs and came out to fight again. Her good luck ran out, however, when she was torpedoed and sunk by *UB47* on 27 December 1916.



38▲ 39▼



Charlemagne continued to serve until 1917 when she was disarmed and used for subsidiary uses. *St. Louis* was placed in reserve in 1917, but in 1919 was used as an accommodation ship for the Mechanics' School.

38. *Henri IV*, c., 1902. An unorthodox layout in respect to hull lines, *Henri IV* was initially designed as a coastal defence vessel and included many novel and innovative features. Her hull was divided into three different levels – extremely high freeboard forward and amidships, but the quarterdeck was almost at waterline level like one of the old American monitors. The first superfiring turret system was introduced when a 5.5in gun was placed

over the 10.8in turret. To test the effects of blast, sheep were placed in the 10.8in turret before going off to gunnery trials. One of the sheep had a cardiac arrest and another suffered a brain haemorrhage, both probably caused by severe shock rather than blast. This did not do much for the morale of the crews destined to serve these turrets, and caused a loss of faith in such a system. *Henri IV* was fitted with one of the earliest forms of underwater protection when she was given an armoured wing passage which formed a 1½in curved bulkhead below the armoured belt.

39. *Jena* on preliminary sea trials, February 1901. One of the better designs to appear in

the French Navy during the last decade of the nineteenth century. As completed she was comparable with most foreign contemporaries and proved herself to be a good seaboat. She was typically French in appearance with her tumblehome hull, round turrets and black tall funnel tops. During her preliminary sea trials some difficulty was experienced due to misalignment of machinery causing over-heating. After rectification of this fault, she made 18.2 knots with 16,500shp during her full power runs which was equal to the latest British battleships then completing (*Formidable* class).

REDOUBTABLE

Construction

Lorient; laid down Aug 1873; launched Sept 1876; completed 1879.

Displacement: 9,437 tons normal load.

Dimensions

Length: 318ft 2in (wl)

Beam: 64ft 8in

Draught: 25ft 6in.

Armament

8×10.8in (re-armed 8×9.4in later)

6×5.5in (later re-armed with 6×3.9in)
12×1pdr

TT: 2×14in (fitted later).

Armour (wrought iron)

Main belt: 14in

Battery: 9½in

Deck: 2½in.

Machinery

Horizontal return connecting-rod compound engines driving a single screw

Boilers: 8 oval single-ended

Designed SHP: 6,071 for 14 knots

Fuel: 510 tons coal.

Complement: 700.

Fate: sold for scrap 1910.

DEVASTATION AND COURBET

Construction

Courbet: Brest; laid down 1876; launched 1881; completed 1882

Dévastation: Lorient; laid down Jan 1876; launched April 1879; completed 1882.

Displacement: 10,808 tons normal load (*Dévastation* 10,704).

Dimensions

Length: 312ft (wl)

Beam: 67ft

Draught: 25ft.

Armament

4×13.4in as completed (re-armed 1899
4×10.8in)

4×10.8in (re-armed 4×9.4in)

6×5.5in

TT: 2×14in.

Armour (wrought iron and steel)

Main belt: 15in at thickest part; 7in ends

Battery: 9½in

Deck: 2½in

Bulkheads: 8½in.

Machinery

Vertical compound engines driving twin screws

Boilers: Scotch cylindrical type

Designed SHP: 8,320 for 14.20 knots

Fuel: 628 tons coal.

Complement: 685.

Fates:

Courbet: sold for scrap 1910

Dévastation: sold for scrap 1922.

AMIRAL DUPERRE

Construction

La Seyne; laid down Jan 1877; launched Sept 1879; completed 1882.

Displacement: 11,200 tons normal load.

Dimensions

Length: 311ft (pp); 319ft 10in (wl)

Beam: 66ft 11in

Draught: 26ft 9in.

Armament

4×13.4in

1×6.3in

TT: 2×14in.

Armour (wrought iron and steel)

Main belt: 21½in at thickest part; 10in ends

Barbettes: 11½in

Conning tower: 1½in

Deck: 2¼in.

Machinery

Vertical compound engines driving twin screws

Boilers: 12 Scotch cylindrical type

Designed SHP: 8,120 for 14.22 knots

Fuel: 850 tons coal.

Complement: 664.

Fate: sold for scrap 1910.

CAIMAN CLASS

Construction

Caiman: Toulon; laid down 1878; launched 1885; completed 1888

Indomptable: Lorient; laid down 1878; launched 1883; completed 1886

Requin: Bordeaux; laid down 1877;

launched 1885; completed 1886

Terrible: Brest; laid down 1877;

launched 1881; completed 1884.

Displacement: 7,240 tons (*Caiman*);
7,235 tons (*Indomptable*); 7,800 tons
(*Requin*); 7,520 tons (*Terrible*).

Dimensions

Length: 271ft (pp); 278ft (wl)

Beam: 59ft

Draught: 26ft 3in.

Armament

2×16.5in 75ton BL

4×3.9in

Later they were all re-armed: *Terrible*:

2×13.4in; other three 2×10.8in.

Armour (compound and mild steel with

some Harvey nickel on certain strakes)

Main belt: 17¼in amidships, 11in ends

Turrets: 8½in (10.8in)

Barbettes: (16.5in) 17¼in

Barbette bases: 10in

Conning tower: 2in

Decks: 3¾in.

Machinery

2 sets vertical compound 3-cylinders driving 2 screws

Boilers: 12 cylindrical as completed;

Requin 12 Niclausse as reconstructed

Designed SHP: 6,000 for 14 knots

Fuel: 750/800 tons maximum.

Complement: 490/500.

Fates:

Indomptable: sold for scrap 1927

Caiman: sold for scrap 1927

Terrible: sold for scrap 1911

Requin: sold for scrap 1919.

FURIEUX

Construction

Cherbourg; laid down 1878; launched July 1883; completed 1886.

Displacement: 6,000 tons normal load.

Dimensions

Length: 249ft (wl)

Beam: 58ft 9in

Draught: 25ft.

Armament

2×9.4in

4×65mm

8×47mm

2×37mm

TT: 2×15in.

Armour (compound and mild steel)

Main belt: 17¼in amidships, 12in ends

Turrets: 11in

Turret bases: 9in

Hoists: 6in

Conning tower: 3in

Decks: 3¾in.

Machinery

2 sets compound 3-cylinder engines driving 2 screws

Boilers: 8 Belleville in four groups

Designed SHP: 5,000 for 13 knots

Fuel: 320 tons.

Complement: 245.

Fate: sold for scrap 1913.

FORMIDABLE CLASS

Construction

Formidable: Lorient; laid down Sept 1879; launched April 1885; completed 1890

Amiral Baudin: Brest; laid down 1879;

launched June 1883; completed April 1888.

Displacement: 12,165 tons normal load (*Amiral Baudin* 11,900).

Dimensions

Length: 329ft 6in (wl); 331ft 6in (oa)

Beam: 69ft 6in

Draught: 28ft 6in.

Armament

2×14.6in (re-armed later with 10.8in)

8×6.4in

8×5.5in

12×47mm

18×37mm

TT: 6×15in.

Armour (compound and steel)

Main belt: 16in amidships, 10–6in ends (8ft 3in wide amidships)

Barbettes: 16in

Barbette bases 7½in

Casemates: 4in

Conning tower: 4in

Decks: 3½in.

Machinery

2 sets 3-cylinder compound engines driving 2 screws

Boilers: 12 cylindrical tubular

Designed SHP: 5,000/9,700 for 14/16.2 knots

Fuel: 800 tons coal plus 100 tons oil.

Complement: 650.

Fates:

Amiral Baudin: hulked 1909

Formidable: sold for scrap 1911.

VALMY AND JEMMAPES

Construction

Valmy: St-Nazaire; laid down 1890;

launched 1892; completed 1894

Jemmapes: Société de la Loire, St-Nazaire; laid down 1890; launched April 1892; completed 1894.

Displacement: 6,480 tons normal load.

Dimensions

Length: 283ft 9in (pp)

Beam: 57ft 4in

Draught: 23ft 3in.

Armament

2×13.4in 40cal

4×4in

4×3pdr

TT: 2×17.7in.

Armour (Creusot, nickel and mild steel)

Main belt: 17¼in amidships; 10in ends

Turrets: 14in

Turret bases: 12in

Conning tower: 11¼in–4in

Decks: 3¼in.

Machinery

2 sets horizontal 3-cylinder expansion engines driving 2 screws

Boilers: 16 Lagrafel d'Allest in 3 groups

Designed SHP: 5,000/9,000 for 14/17

knots

Fuel: 350 tons coal.

Complement: 315.

Fates:

Valmy: sold for scrap 1911

Jemmapes: sold for scrap 1919.

HOCHE

Construction

Lorient; laid down June 1881; launched

Sept 1886; completed 1889–1900.

Displacement: 10,997 tons normal load.

Dimensions

Length: 333ft (pp)

Beam: 65ft 6in

Draught: 28ft 6in.

Armament

2×13.4in 30cal

2×10.8in

8×5.5in

10×3pdr

TT: 5×15in.

Armour (compound iron and steel)

Main belt: 17¼in amidships, 14in at ends

Upper belt: 3in

Turrets: 15¾in

Turret bases: 14½in

Hoists: 6in

Bow belt: 3in

Conning tower: 9in

Decks: 3¼in.

Machinery

2 sets 3-cylinder compound vertical engines driving 2 screws

Boilers: 18 Belleville with economizers

Designed SHP: 7,000/11,300 for 14/16.2 knots

Fuel: 400/820 tons coal.

Complement: 660.

Fate: sunk as target, November 1913.

MAGENTA CLASS

Construction

Magenta: Toulon; laid down 1880;

launched 1890; completed 1893

Neptune: Brest; laid down 1880;

launched 1887; completed 1892

Marceau: La Seyne; laid down 1881;

launched 1887; completed 1891.

Displacement: 10,800 tons normal load (*Neptune* 10,980).

Dimensions

Length: 326ft 6in (pp) (*Marceau*); 330ft (pp) (other two)

Beam: 65ft 7in *Magenta*, *Neptune*; 65ft

10in *Marceau*

Draught: 27ft 6in.

Armament

4×13.4in 30cal

17×5.5in

4×65mm

12×47mm

10×37mm

TT: 6×15in.

Armour (compound and steel)

Main belt: 17¾in amidships (6ft 6in wide); 14in at ends; 11in–9in stern and bow

Barbettes: 16in

Hoods: 2in

Hoists: 13½in

Battery screens: 2in

Conning tower: 7in–2in

Decks: 2¾in.

Machinery

2 sets 3-cylinder compound engines driving 2 screws

Boilers: Niclausse (*Marceau*), Belleville in other two

Designed SHP: 10,000/12,000 for 14.8/16 knots

Fuel: 800 tons coal.

Complement: 650/678.

Fates:

Magenta: sold for scrap 1910

Neptune: sold for scrap 1912

Marceau: sold for scrap 1922.

BRENNUS

Construction

Lorient; laid down Jan 1889; launched Oct 1891; completed 1895.

Displacement: 11,190 tons normal load.

Dimensions

Length: 361ft 10in (pp)

Beam: 66ft 11in

Draught: 26ft 3in.

Armament

3×13.4in 42cal

10×6.4in 45cal

4×9pdr

14×3pdr

TT: 4×18in.

Armour (Creusot steel, compound)

Main belt: 17.7in (5ft 6in wide)

Ends: 11.8in

Main turrets: 17.7in thickest part; 8in rears

Central loading tubes: 8in

Battery: 4in

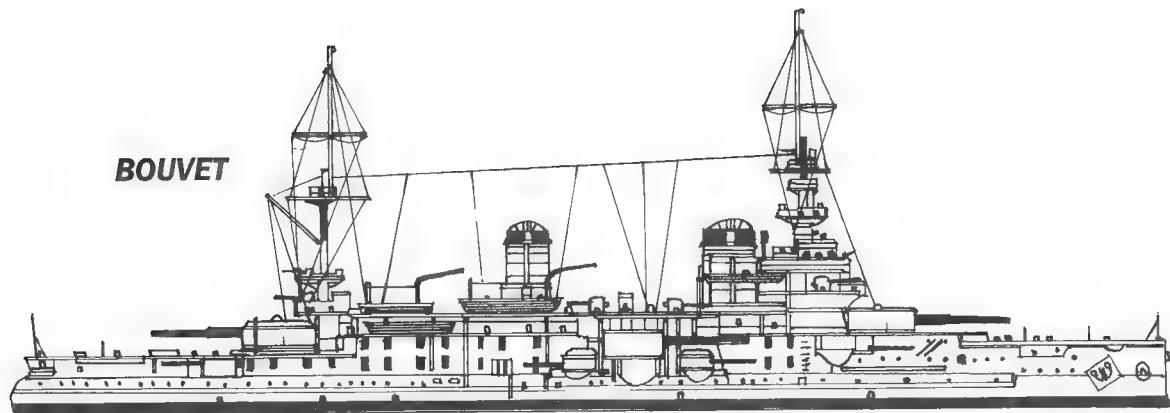
Conning tower: 6.8in

Main deck: 3.2in.

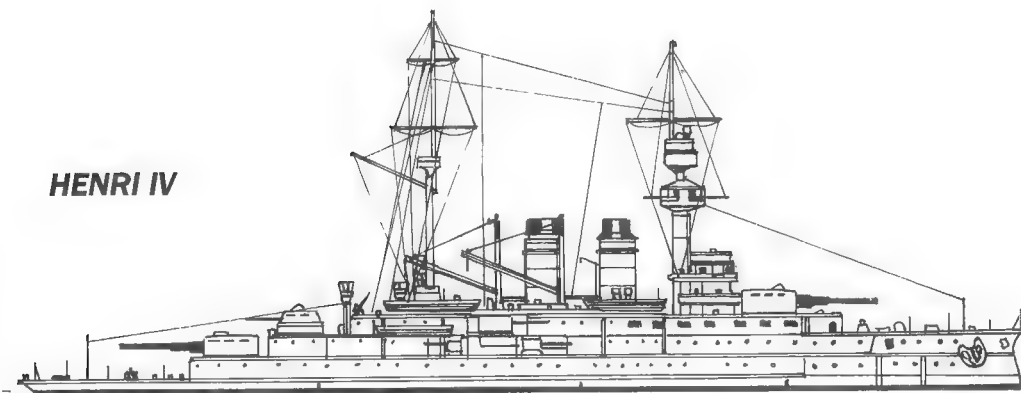
Machinery

2 sets vertical triple expansion engines driving twin screws

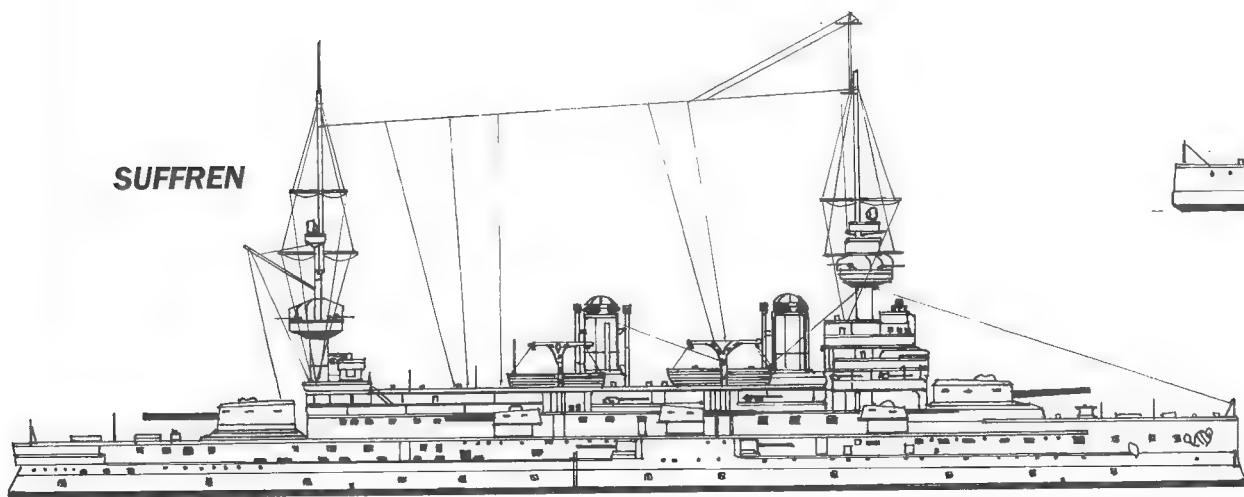
BOUVET

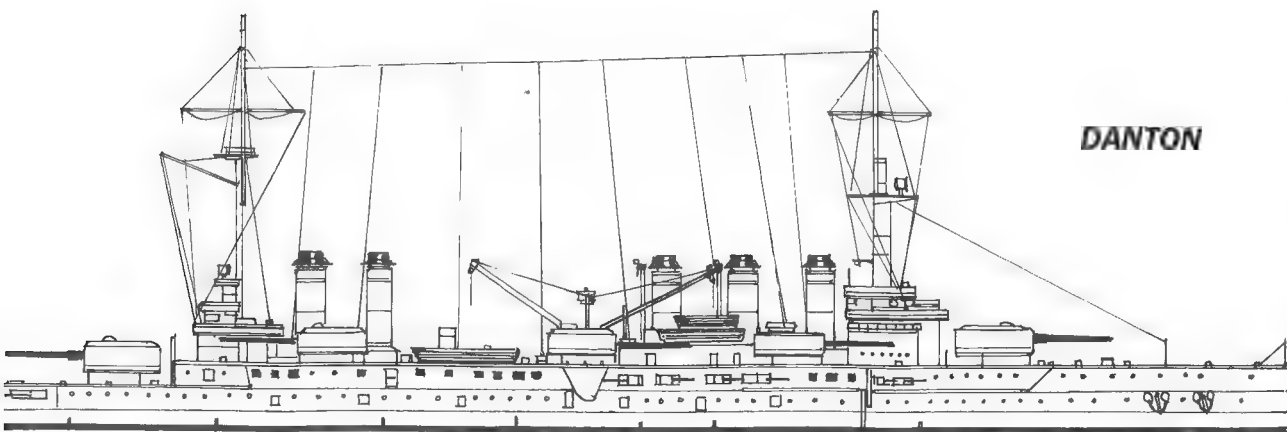
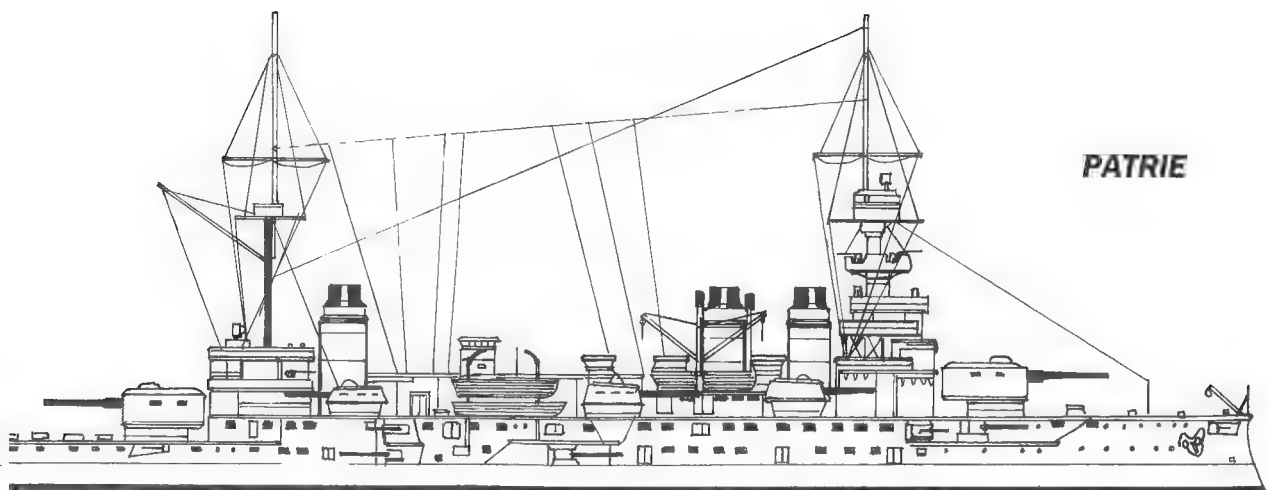


HENRI IV



SUFFREN





Boilers: 32 Belleville without economizers
Designed SHP: 13,750 for 17.5 knots
Fuel: 984 tons coal maximum.
Complement: 673.
Fate: sold for scrap 1922.

AMIRAL TREHOUART AND BOUVINES

Construction

Amiral Trehouart: Lorent; laid down 1890; launched 1893; completed 1896

Bouvines: La Seyne; laid down 1890; launched 1892; completed 1895.

Displacement: 6,630 tons *Trehouart*; 6,610 tons *Bouvines*.

Dimensions

Length: 293ft 9in (pp); 329ft 6in (oa)

Beam: 69ft 6in

Draught: 28ft 6in.

Armament

2×12in 45cal

8×4in

4×47mm

10×37mm

TT: 2×18in.

Armour (Creusot)

Main belt: 17¾in amidships; 10in ends

Turrets: 13¾in

Turret bases: 12in

Conning tower: 6in–8in

Decks: 3¾in.

Machinery

2 sets inclined triple expansion engines driving 2 screws

Boilers: 16 Belleville (*Trehouart*), 16

Lagrafel d'Allest (*Bouvines*)

Designed SHP: 5,000/8,400 for 14/17.5 knots

Fuel: 300/340 tons coal.

Complement: 328.

Fates:

Amiral Trehouart: sold for scrap 1922

Bouvines: sold for scrap 1920.

CHARLES MARTEL

Construction

Brest; laid down April 1891; launched Aug 1893; completed 1896.

Displacement: 11,693 tons normal load.

Dimensions

Length: 378ft 11in (pp); 390ft (wl)

Beam: 71ft

Draught: 27ft 6in.

Armament

2×12in 45cal
2×10.8in 40cal
8×5.5in
4×9pdr
20×3pdr
TT: 2×17.7in.

Armour (Creusot steel and compound)

Main belt: 17.7in (7ft 6in wide)

Lower edge: 10in

Ends: 11in–13in

Upper belt: 4in

Turrets: 15.8in thickest part

Central loading tubes: 6in

Conning tower: 8.6in

Decks: 3.5in main

1.3in lower.

Machinery

2 sets vertical triple expansion engines driving twin screws

Boilers: 24 Lagrafel d'Allest in three groups

Designed SHP: 14,997 for 18 knots

Fuel: 609 tons coal minimum, 984 tons maximum.

Complement: 644.

Fate: sold for scrap in 1922.

CARNOT

Construction

Toulon DY; laid down July 1891;

launched July 1894; completed 1896.

Displacement: 11,954 tons normal load.

Dimensions

Length: 374ft (pp); 380ft 6in (wl)

Beam: 70ft 6in

Draught: 27ft 2in.

Armament

2×12in 45cal

2×10.8in 40cal

8×5.5in

4×65mm

18×47mm

TT: 2×17.7in.

Armour (Creusot)

Main belt: 17¾in amidships, 9in ends (7ft 3in wide)

Upper belt: 4in

Turrets: 15in

Turret bases: 6in

Conning tower: 8¾in

Decks: 3in.

Machinery

2 sets triple expansion engines driving 2 screws

Boilers: 12 Lagrafel d'Allest

Designed SHP: 10,850/16,340 for 16.6/17.6 knots

Fuel: 500/900 tons coal.

Complement: 647.

Fate: sold 1919.

JAUREGUIBERRY

Construction

La Seyne; laid down April 1891; launched 27 Oct 1893; completed Feb 1897.

Displacement: 11,637 tons normal load.

Dimensions

Length: 356ft (pp); 364 (wl)

Beam: 72ft 8in

Draught: 27ft 8in.

Armament

2×12in 45cal

2×10.8in 40cal

8×5.5in 45cal

4×65mm

16×47mm

TT: 2×17.7in.

Armour (Creusot)

Main belt: 17¾in amidships; 6in ends

Upper belt: 4in

Turrets: 15in

Turret bases: 6in

Secondary turrets: 4in

Conning tower: 9in

Decks: 3¾in (main).

Machinery

Vertical triple expansion driving 2 screws

Boilers: 24 Lagrafel d'Allest in 6 groups

Designed SHP: 9,940/14,400 for 16.3/17.6 knots

Fuel: 750/984 tons coal.

Complement: 631.

Fate: sold for scrap in 1932.

MASSENA

Construction

St-Nazaire; laid down Sept 1892; launched July 1895; completed 1898.

Displacement: 11,924 tons normal load.

Dimensions

Length: 380ft 6in; 369ft 7in (pp)

Beam: 66ft 6in

Draught: 26ft 9in.

Armament

2×12in 40cal

2×10.8in 40cal

8×5.5in 45cal

8×3.9in

TT: 4×17.7in.

Armour (compound and nickel steel)

Main belt: 17¾in amidships

Upper belt: 4in

Turrets: 13¼in (main)
 Turret bases: 8in
 Conning tower: 13¼in
 Bulkheads: 15in/8in
 Decks: 4in.
Machinery
 3 sets vertical triple expansion engines driving 3 screws
 Boilers: 24 Lagrafel d'Allest in 3 groups
 Designed SHP: 9,800/14,000 for 16.1/17.1 knots
 Fuel: 984 tons coal.
Complement: 667.
Fate: sunk as breakwater at Gallipoli evacuation, 9 November 1915.

BOUVET

Construction
 Lorient; laid down Jan 1893; launched April 1896; completed June 1898.
Displacement: 12,007 tons normal load.
Dimensions
 Length: 386ft 6in (pp)
 Beam: 70ft 2in
 Draught: 27ft 6in at above displacement.
Armament
 2×12in
 2×10.8in
 8×5.5in
 8×3.9in
 12×47mm
 TT: 2×18in.
Armour (Harvey and nickel steel)
 Main belt: 15.7in amidships; 8in at ends
 Upper belt: 4in
 Main turrets: 15.7in
 Conning tower: 12in–13in
 Secondary turrets: 4in
 Deck: 2.6in at thickest part.

Machinery
 32 Belleville boilers in four boiler rooms;
 Working pressure: 250psi
 Designed SHP: 15,000 natural draught
 Fuel: 630 tons coal minimum, 800 tons maximum.
Complement: 666.
Fate: sunk by mine during Dardanelles campaign, 18 March 1915.

CHARLEMAGNE CLASS

Construction
Charlemagne: Brest; laid down July 1894; launched 17 Oct 1895;

completed Feb 1898
St Louis: Lorient; laid down 28 Mar 1895; launched 8 Sept 1896; completed Feb 1900
Gaulois: Brest; laid down Jan 1896; launched Oct 1896; completed Feb 1899.
Displacement: 11,108 tons normal load (*Charlemagne*); 11,090 tons (*St Louis*); 11,105 tons (*Gaulois*).
Dimensions
 Length: 374ft (pp); 385ft 6in (oa)
 Beam: 66ft 5in
 Draught: 27ft 6in.

Armament
 4×12in 1893/6 model; 45cal
 10×5.5in
 8×3.9in
 8×4in
 20×47mm
 4×37mm
 TT: 2×18in.
Armour (Harvey, nickel, mild steel)
 Main belt: 14.2in; 1ft 6in above, 5ft below waterline
 Upper belt: 3.9in
 Main turrets: 15in thickest part
 Central loading tube: 8in
 Turret hoods: 1½in
 Battery: 3in
 Conning tower: 12.7in
 Decks: 3.3in upper; 1.57in lower.

Machinery
 3 sets vertical triple expansion engines
 Boilers: 20 Belleville with economizers, in four rooms
 Designed SHP: 15,000 for 18.1 knots
 Fuel: 1,080 tons coal maximum.
Complement: 694.
Fates:
Charlemagne: sold and scrapped from June 1920
St. Louis: sold and scrapped from April 1933
Gaulois: sunk by UB 47 27 October 1915.

HENRY IV

Construction
 Cherbourg; laid down July 1897; launched Aug 1899; completed 1902.
Displacement: 8,948 tons normal load.
Dimensions
 Length: 354ft 4in
 Beam: 72ft 3in
 Draught: 24ft 9in.
Armament
 2×10.8in 45cal

7×5.5in 45cal
 2×9pdr
 12×47mm
 2×37mm
 TT: 2×17.7in.
Armour (Harvey and nickel)
 Main belt: 11in amidships; 4¾in upper strake; 8in ends
 Turrets: 11¼in–10in
 Barbettes: 11¼in
 Battery: 4½in
 Bulkheads: 4in
 Conning tower: 11in
 Decks: 2¾in upper; 1¼in lower.
Machinery
 3 sets triple expansion engines driving 3 screws
 Boilers: 12 Niclausse
 Designed SHP: 11,500 for 17.1 knots
 Fuel: 820/1,100 tons coal.
Complement: 465.
Fate: scrapped from 1921.

JENA

Construction
 Brest; laid down Jan 1898; launched Sept 1898; completed April 1902.
Displacement: 11,861 tons normal load.
Dimensions
 Length: 400ft 9in (wl)
 Beam: 68ft 3in
 Draught: 27ft 6in.
Armament
 4×12in 45cal
 8×6.4in 45cal
 8×4in
 24×3pdr
 TT: 2×17.7in.
Armour (Harvey, nickel)
 Main belt: 12.6in
 Ends: 9in
 Upper belt: 3½in
 Turrets: 11.4in
 Central loading tubes: 8in
 Battery: 6in
 Battery bulkhead: 3½in
 Conning tower: 11.4in
 Decks: 3.2in main.
Machinery
 3 sets 4-cylinder triple expansion engines driving triple screws
 Boilers: 24 Belleville in four groups
 Designed SHP: 16,500 for 18 knots
 Fuel: 820 tons minimum, 1,080 tons maximum.
Complement: 682.
Fate: destroyed by internal explosion 12 March 1907, but partially repaired to serve as target ship.

SUFFREN

Construction

Brest; laid down Jan 1899; launched July 1899; completed 1903.

Displacement: 12,527 tons normal load.

Dimensions

Length: 411ft 9in (wl)

Beam: 70ft 2in

Draught: 27ft 6in at above displacement.

Armament

4×12in 1893/6 model, 45 cal; 106rpg

10×6.5in 45cal

8×3.9in

22×47mm

TT: 4×18in.

Armour (Harvey)

Main belt: 11.8in; 3ft 7in above, 4ft 7in below waterline

End belt: 9in–4in

Upper belt: 5.1in special steel construction (probably nickel type)

Main turrets: 12.6in at thickest part

Secondary casemates: 5.1in

Secondary ammunition tubes: 5.9in

Conning tower: 11.8–9.8in

Deck: upper 2.7in, lower 1.6in.

Machinery

3 sets vertical triple expansion engines

driving twin screws

Working pressure: 212psi

Boilers: 24 Niclausse in 8 groups

Designed SHP: 16,200 for 16 knots

Fuel: 820 tons coal minimum, 1,100 tons maximum.

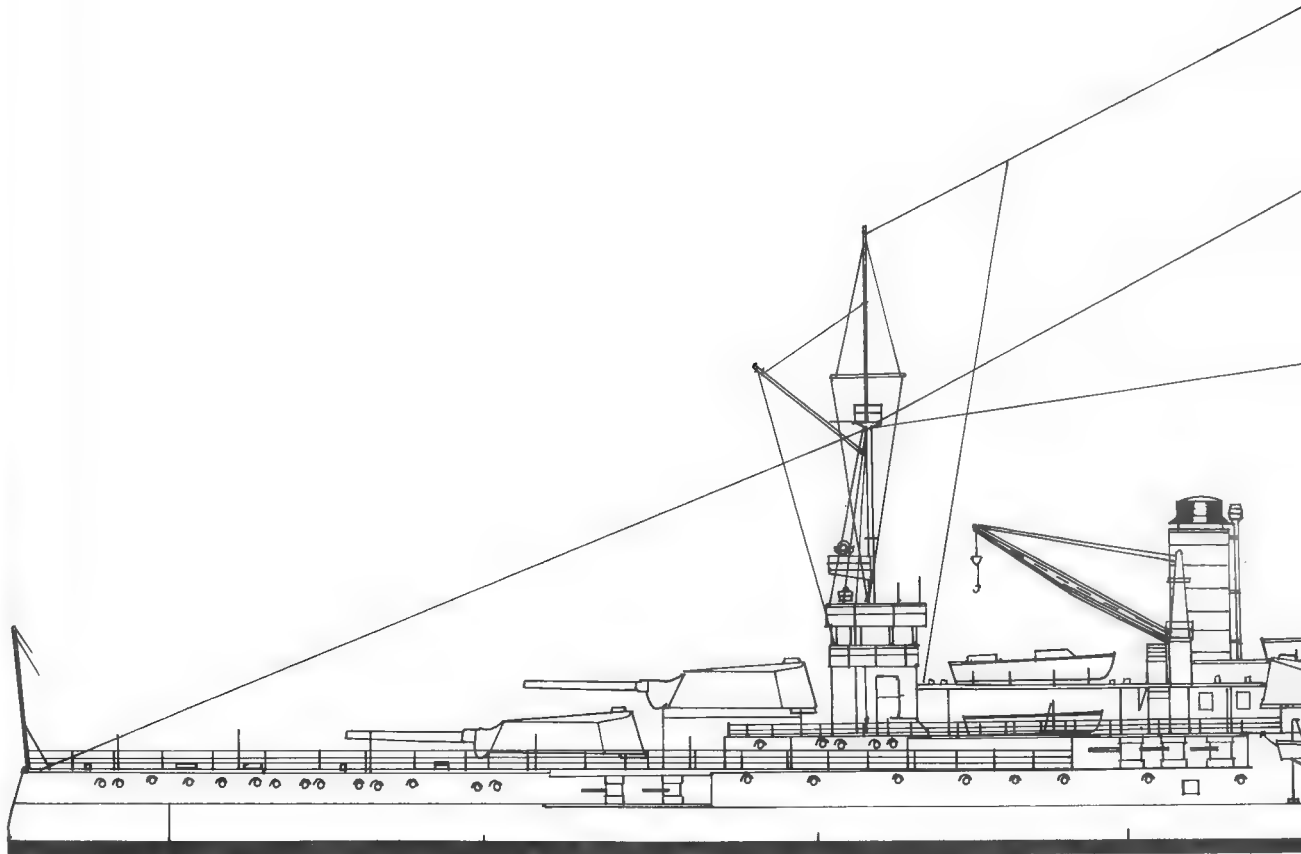
Complement: 714.

Fate: sunk by torpedo, 26 November 1916.

PATRIE CLASS

Construction

Patrie: La Seyne; laid down April 1902;



launched Dec 1903; completed Dec 1906

République: Brest; laid down Dec 1901; launched Sept 1902; completed Dec 1906.

Displacement: 14,633 tons normal load.

Dimensions

Length: 439ft (pp)

Beam: 79ft 7in

Draught: 27ft 7in.

Armament

4×12in 45cal

18×6.5in 45cal

25×47mm

.TT: 2×17.7in.

Armour (Krupp)

Main belt: 11–8in

Ends: 7in

Upper belt: 9½in

Turrets: 12¾in

Barbettes: 11in

Secondary turrets: 7in

Conning tower: 11in

Decks: 2½in main.

Machinery

3 sets vertical inverted triple expansion engines driving 3 screws

Boilers: 24 Niclausse

Designed SHP: 17,500 for 18 knots

Fuel: 905 tons minimum; 1,825 tons

coal maximum.

Complement: 793.

Fates:

Patrie: sold for scrap in 1927

République: sold for scrap in 1922.

VERITE CLASS

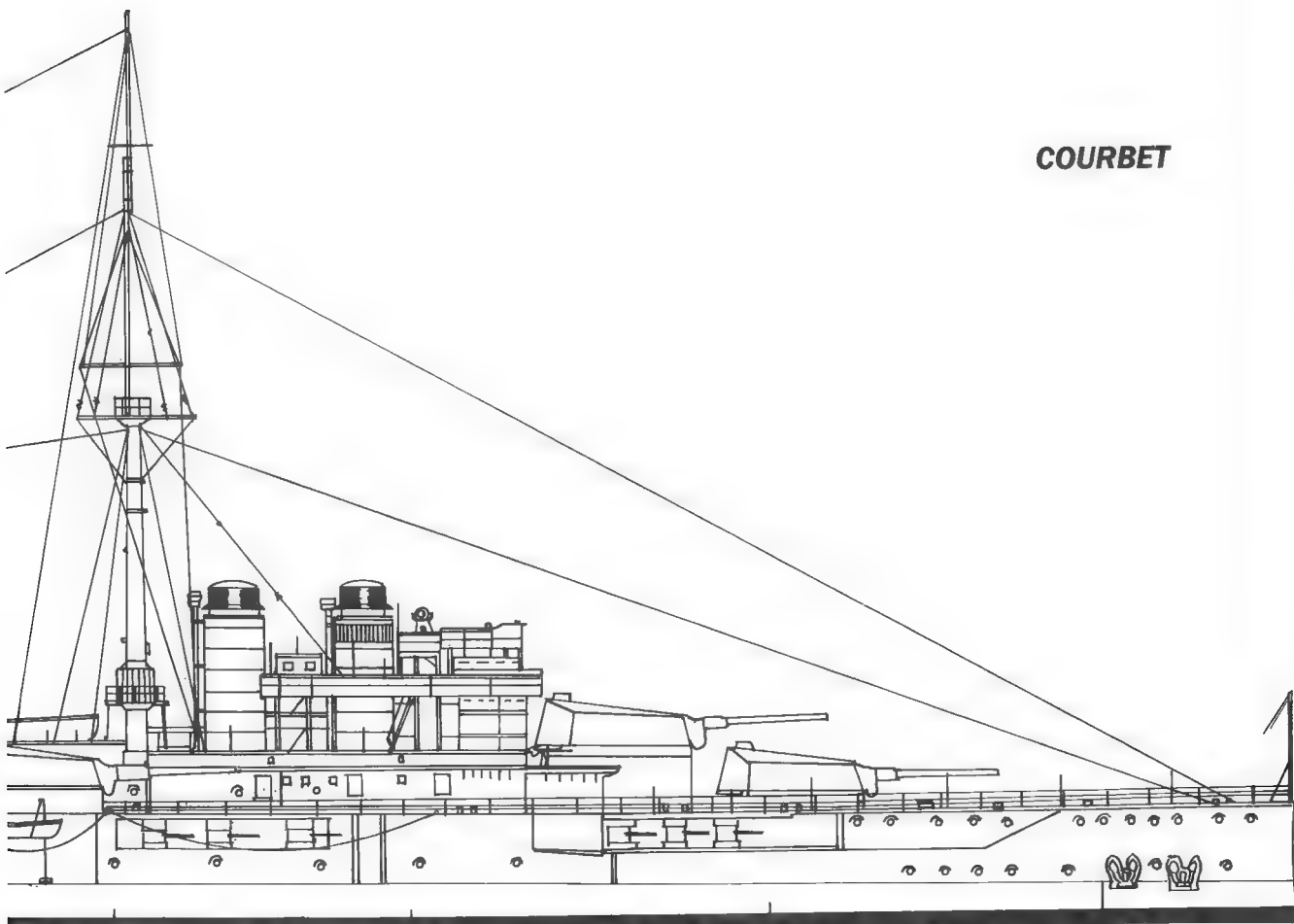
Construction

Vérité: Bordeaux; laid down May 1903;

launched May 1907; completed Mar

1908

COURBET



Démocratie: Brest; laid down May 1903; launched April 1904; completed July 1907

Justice: La Seyne; laid down May 1903; launched 27 Sept 1904; completed July 1907.

Displacement: 14,500 tons normal load; 15,750 tons full load.

Dimensions

Length: 439ft (wl); 452ft (oa)

Beam: 79ft 6in

Draught: 27ft 6in.

Armament

4×12in 45cal

10×7.6in 45cal

13×65mm

6×47mm

TT: 2×18in.

Armour (Krupp and nickel steel)

Main belt: 11in amidships (6ft 6in wide); 10in upper strake

Ends: 9in—7in

Bows: 3in

Main turrets: 12½in

Turret bases: 11in

Conning tower: 11in

Secondary turrets and casemates: 5½in.

Machinery

3 sets triple expansion engines driving 3 screws

Boilers: 22/24 Niclausse or Belleville

Designed SHP: 17,500 for 18 knots

Fuel: 905/1,825 tons coal.

Complement: 742.

Fates:

Vérité: sold for scrap in 1921

Démocratie: sold for scrap in 1921

Justice: sold for scrap in 1921/2.

DANTON CLASS

Construction

Danton: Brest; laid down Feb 1908;

launched 4 July 1909; completed Mar 1911

Mirabeau: Lorient; laid down May 1908;

launched 1909; completed July 1911

Diderot: St-Nazaire; laid down Oct 1907;

launched 19 April 1909; completed June 1911

Condorcet: St-Nazaire; laid down Aug

1907; launched 20 Aug 1909;

completed June 1911

Voltaire: La Seyne; laid down July 1907;

launched 16 Jan 1909; completed June 1911

Vergniaud: Bordeaux; laid down July

1908; launched 12 April 1910;

completed Sept 1911.

Displacement: 18,400 tons normal load; 19,700 tons full load.

Dimensions

Length: 475ft 9in (wl); 480ft (oa)

Beam: 84ft 8in

Draught: 28ft 8in.

Armament

4×12in 50cal (1906 model)

12×9.4in 50cal

16×75mm

8×47mm

TT: 2×18in.

Armour (Krupp)

Main belt: 10in (6ft 6in wide); 8in lower

Ends: 6in

Turret bases: 11in

Turrets: 12½in

Secondary turrets: 8½in

Conning tower: 11½in

Decks: 2½in.

Machinery

4 Parsons turbines driving four shafts

Boilers: 26 Niclausse (some ships of class had Belleville)

Designed SHP: 22,500 for 19¾ knots

Fuel: 965/2,100 tons coal.

Complement: 920.

Fates:

Danton: torpedoed by U64 off Sardinia,

19 March 1917

Diderot: sold for scrap in 1936

Voltaire: sold for scrap in 1937—8

Condorcet: scrapped from 1945

Mirabeau: scrapped from 1928

Vergniaud: sunk as target 1922.

COURBET CLASS

Construction

Courbet: Lorient; laid down Sept 1910;

launched 23 Sept 1911; completed Nov 1913

Paris: La Seyne; laid down Oct 1911;

launched 28 Sept 1911; completed Aug 1914

Jean Bart: Brest; laid down Nov 1910;

launched 26 Sept 1911; completed Nov 1913

France: St-Nazaire; laid down Nov 1911;

launched 7 Nov 1912; completed Oct 1914.

Displacement: 23,189 tons normal load; 25,800 tons full load.

Dimensions

Length: 541ft (pp)

Beam: 88ft 6in

Draught: 29ft 6in.

Armament

12×12in 45cal

22×5.5in 55cal

4×47mm

TT: 4×18in.

Armour (Krupp)

Main belt: 10¾in amidships (13ft wide)

Ends: 8in

Upper belt: 7in

Turrets: 13in

Barbettes: 11in

Secondary casemates: 7in

Conning tower: 12in

Decks: 1½in main, 1¼in middle.

Machinery

Parsons turbines driving four screws

Boilers: 24 Belleville (*Jean Bart* and

France), 24 Niclausse (*Courbet*)

Designed SHP: 28,000 for 21 knots

Fuel: 900/2,100 tons coal.

Complement: 1,180.

Fates:

Courbet: scuttled as breakwater 9 June 1944

Paris: sold for scrap 1956

Jean Bart: sold for scrap 1945

France: sunk in Quiberon Bay after hitting uncharted rock, 26 Aug 1922.

BRETAGNE CLASS

Construction

Bretagne: Brest; laid down July 1912;

launched 21 April 1913; completed 1915

Lorraine: Penhoët; laid down Aug 1912;

launched 30 Sept 1913; completed July 1916

Provence: Lorient; laid down May 1912;

launched 20 April 1913; completed June 1916.

Displacement: 23,300 tons normal load; 25,600 tons full load.

Dimensions

Length: 541ft 3in (pp)

Beam: 88ft 9in

Draught: 29ft 8in.

Armament

10×13.4in 45cal

22×5.5in 55cal

4×3in

TT: 4×18in.

Armour (Krupp)

Main belt: 10¾in amidships

Ends: 7in

Upper belt: 7in

Turrets: 13½in except superimposed

turret 10in; midships turret 16in

Barbettes: 10¾in

Casemates: 7in

Conning tower: 12½in

Decks: 1¼in forecastle; upper 2in; main 2¾in.

Machinery

Parsons turbines driving 4 screws

Boilers: *Bretagne* 24 Niclausse; *Lorraine* 24 Belleville; *Provence* 18 Guyot de Temple
 Designed SHP: 29,250 for 20 knots
 Fuel: 900/2,700 tons coal.
Complement: 1,130.
Fates:
Bretagne: sunk by gunfire at Oran, 3 July 1940
Lorraine: sold for scrap 1953
Provence: scuttled at Toulon, 27 November 1942.

NORMANDIE CLASS

Construction

Normandie: St-Nazaire; laid down April 1913; launched 19 Oct 1914; suspended
Gascogne: Lorient; laid down Oct 1913; launched 20 Sept 1914; suspended
Languedoc: Bordeaux; laid down April 1913; launched 1 May 1915; suspended
Flandre: Brest; laid down Oct 1913; launched 20 Oct 1914; suspended
Beam: La Seyne; laid down Jan 1914; launched April 1920; converted to carrier 1923-6.

Displacement: 25,300 tons (as designed).

Dimensions

Length: 574ft
 Beam: 92ft
 Draught: 28ft 9in.

Armament

12×13.4in
 24×5.5in.

Armour (Krupp)

Main belt: 12¾in
 Turrets: 16in
 Decks: 2¾in.

BEARN AS CARRIER

Displacement: 22,146 tons normal load; 25,100 tons full load.

Dimensions

Length: 576ft (wl); 599ft (oa)
 Beam: 89ft (extreme beam over flight deck, etc. 115ft 6in)
 Draught: 30ft 6in.

Armament

8×6.1in 55cal
 6×75mm AA
 8×37mm AA
 TT: 4×21in,

Armour

Main belt: 3¾in

Main deck: 1in
 Flight deck: 1in
 Lower deck: 1-2¾in
 Casemates: 2¾in.
Machinery
 2 sets turbines for inner screws, 2 sets reciprocating engines for outers
 Boilers: 12 Du Temple Normand small tube
 Designed SHP: 22,500 for 21.5 knots
 Fuel: 2,160 tons oil.
Complement: 875.
Aircraft: 40.
Fate: sold for scrap at Toulon, March 1967.

DUNKERQUE AND STRASBOURG

Construction

Dunkerque: Brest; laid down Dec 1931; launched 2 Oct 1935; completed 1936
Strasbourg: St-Nazaire; laid down Nov 1934; launched 12 Dec 1936; completed 1939.

Displacement: 30,907 tons normal load; 34,800 tons full load (*Dunkerque*)
 31,600 tons normal load; 35,200 tons full load (*Strasbourg*).

Dimensions

Length: 685ft (wl); 705ft 10in (oa) (*Dunkerque*)
 685ft (wl); 707ft (oa) (*Strasbourg*)
 Beam: 102ft
 Draught: 28/31ft.

Armament

8×13in 52cal
 12×5.1in 45cal
 8×37mm AA
 32×13.2mm AA.

Armour (Krupp)

Main belt: 8¾in amidships tapering to 5in at base (*Dunkerque*); 11¾in amidships (*Strasbourg*)
 Bulkheads: 9in-7in
 Turrets: 13in faceplates (*Dunkerque*); 9¾in sides
 14¾in faceplates (*Strasbourg*); 9¾in sides
 Barbettes: 12¾in (*Dunkerque*); 13¾in (*Strasbourg*)
 Secondary turrets: 6in
 Secondary barbettes: 4¾in
 Conning tower: 10½in-8in
 Decks: Upper 4½in over magazines/machinery, etc; lower 1½in.
 Underwater bulkheads: 2½in.

Machinery

Parsons single reduction geared turbines driving four screws

Boilers: 6 Indret (384psi)
 Designed SHP: 112,500 for 30 knots
 Fuel: 6,500 tons oil.
Complement: 1,382.
Fate:
Dunkerque: scuttled at Toulon, 27 November 1942
Strasbourg: scuttled at Toulon, 27 November 1942.

RICHELIEU CLASS

Construction:

Richelieu: Brest; laid down Oct 1935; launched 17 Jan 1939; completed June 1940

Jean Bart: St-Nazaire; laid down Dec 1936; launched 17 Jan 1939; completed Jan 1949

Clemenceau: Brest; laid down Jan 1939; launched Mar 1941; not completed.

Displacement: 42,800 tons normal load; 47,720 tons full load (*Richelieu*); 42,800 tons normal load; 48,950 tons full load (*Jean Bart*).

Dimensions

Length: 793ft (wl); 813ft 2in (oa)
 Beam: 108ft 6in *Richelieu*; 109ft 5in *Jean Bart*
 Draught: 31ft 6in/35ft.

Armament

8×15in 45cal
 9×6in 55cal
 12×100mm AA
 69×40mm AA
 41×20mm AA
Jean Bart: 24×100mm AA; 20×20mm AA

Provision for 3 seaplanes.

Armour

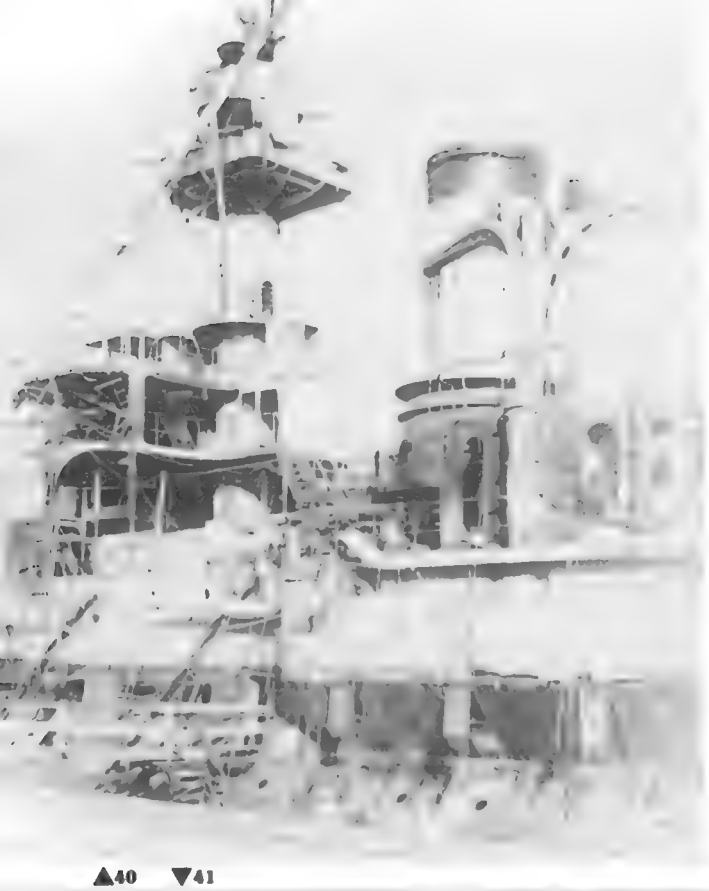
Main belt: 13in inclined at 15.5 degrees
 Bulkheads: 9¾in-15in
 Turrets: 16¾in faces; 12in sides; 7¾in roofs
 Barbettes: 16in
 Secondary turrets: 4¾in faces
 Conning tower: 12in-14in
 Decks: 6in main; 1¾in lower; 2in slopes
 Underwater bulkheads: 2¾in.

Machinery

Parsons single reduction geared turbines driving 4 screws
 Boilers: 6 Indret (397psi)
 Designed SHP: 150,000 for 30/31 knots
 Fuel: 6,700 tons oil.
Complement: 1,490.

Fate:

Richelieu: sold for scrap August 1968
Jean Bart: sold for scrap January 1970
Clemenceau: bombed and sunk, 27 August 1944.



▲40 ▼41

40. *Jena* A rather short-lived predreadnought; she was partially destroyed at Toulon on 12 March 1907. At approximately 1.45pm on that day, a small explosion occurred in the after part of the ship, but almost immediately a massive explosion sent huge chunks of metal flying in all directions – hitting personnel and other ships of the fleet. After the huge column of smoke had cleared it was seen that the entire after part of the ship had fallen into the dry dock in which she was standing. It took nearly 24 hours to put out the fires, and more than 200 men had been killed. The main explosion had been directly under the after magazine which had blown out the bottom of the ship for more than 30 feet. The Board of Inquiry established that it had been spontaneous combustion

and that no particular party had been to blame. Old cordite had been stored in the 3.9in magazine which had exploded and set off the 12in magazines. She is seen here at Toulon after the fires had been extinguished, 13 March 1907.

41. *Suffren* as completed, 1903. Almost a repeat *Jena* with modifications, *Suffren* proved herself a good all-round ship-of-the-line. In appearance she was almost identical with *Jena*, but her 6.5in guns were located in turrets, not in casemates as in *Jena*. With less tumblehome to the hull than *Jena*, she was in fact, one of the last French battleships to have any marked slope. A good steamer, with adequate sea-going qualities, she made 17.92 knots on trials, but proved to be slightly heavier in fuel consumption than previous designs.



42. Suffren in the Dardanelles, 1915. She was the flagship of Amiral Guépratte in the Dardanelles campaign in 1915 and gave a good account of herself. She directed fire at the Kum Kale and Narrows forts

during the action, but on 18 March was damaged by big guns from the shore batteries. She withdrew to Toulon for repairs and did not return until May 1916. Back in the Mediterranean she continued to

give excellent service. On 26 November 1916 she was torpedoed by a German U-boat and suffered an internal explosion before turning turtle and sinking.

43. République as completed, 1906. These two ships (*Patrie* class) introduced some degree of homogeneity within the French battlefleet, for although there had been sister ships before (*St. Louis*, *Charlemagne*, etc.), there were marked differences owing to the latitude given to French shipyards when under construction. *Patrie* and *République* were as identical as possible; moreover, the design was a complete breakaway from the usual French battleship that had appeared over the past fifteen years or so. As completed they were good ships and very economical at sea; not being completed until 1906, however, they had become slightly outdated by the appearance of the all big-gunned British *Dreadnought*, and perhaps the best comparison could be against the *King Edward VII* group which were classed as intermediate dreadnoughts. The secondary armament was unusual in that twelve of the guns were in turrets on the upper deck, while the others were fitted singly in casemates, but four of the midships casemate 6.5in were too low to be of any use in a seaway.

44. République, 1907. Very handsome ships with little of the top hamper usually associated with French battleships. A pronounced curving bow and slightly tumblehome stern was also a breakaway from the normal French practice. Still featuring the tall conspicuous French funnels, however, with the forward pair placed just abaft the bridgework, while the third was placed well astern near the mainmast. In a following wind, fumes from the forward pair caused problems to the bridge. Both ships gave sterling service throughout the war, but were taken out of active service from 1917 and employed as training schools.



42 ▲



43 ▲ 44 ▼





▲ 45

45. *Patrie*, c., 1922. From 1920 to 1927 *Patrie* was used as a training ship for electrical and torpedo apprentices, partially stripped and with many of her guns removed.



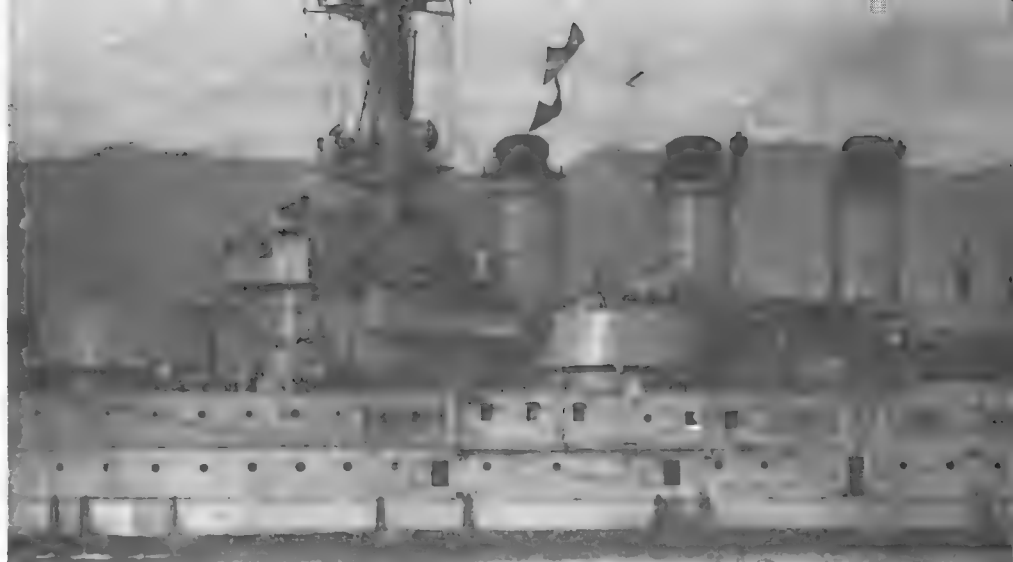
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46. *Démocratie*, c., 1909–10. More or less repeats of the *Patrie* class, but with an eye to the British *King Edward VII* and *Lord Nelsons* with their powerful secondary battery of 9.2in guns, it was decided to give the four ships of the *Vérité* group 7.6in instead of the 6.5in as in *Patrie*. Consequently the *Vérité* class of the 1901 estimates proved to be the most favoured by the service. As completed, they were very difficult to distinguish from the earlier two (*Patrie*) although the larger 7.6in guns could be seen if close up. The French Fleet is seen here at anchor in Malta. *Démocratie* nearest the camera (*Patrie* in distance).



47. *Liberté* These were important ships in that they were France's last true predreadnought type. Like *République*, they proved to be good seaboats and were very economical at cruising speeds. *Liberté* became another casualty of spontaneous combustion in the magazines when she blew up on 25 September 1911. At 5.31 a.m. smoke was observed near the starboard casemate before two or three detonations took place. Then without further warning a great column of flame burst up from below, reaching to bridge level. The flames died down, and general quarters was sounded. Some of the crew were leaping into the water, while others were lowering boats. Five minutes later, however, although still smoking, the ship was calm, and many of the crew were trying to get back aboard. It was thought that the danger had passed, but at 5.53 she erupted with terrific violence and disappeared from view. Loss of life was extremely high, and the debris played havoc with the rest of the fleet anchored nearby.

48. *Condorcet* Although the British *Dreadnought* had been completed for some time, the French had always favoured the *Lord Nelson* class with their four 12in and ten 9.2in guns and drew up plans for ships to equal them. Five ships were provided under the 1906 programme giving the French Navy a fine group of ships which could effectively operate with the *Patrie* and *Vérité* classes. Although they were the first French battleships to be fitted with turbines, their designed speed of 19 knots was not adequate for many of the tasks in the Mediterranean, and certainly did not match many of the foreign contemporaries of the day. Moreover they suffered many mishaps during early steam trials, and it was some time before rectification could be accomplished to make them fully effective as fighting units.



48 ▲

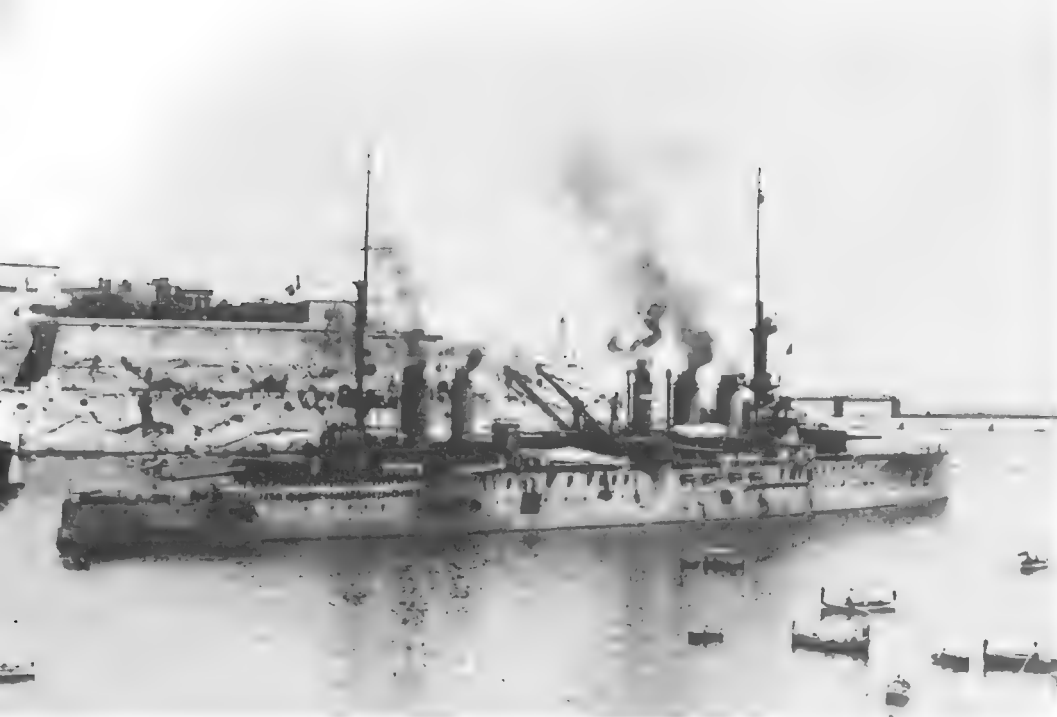
49. *Condorcet*, c., 1912. These intermediate dreadnoughts, armed with four 12in and twelve 9.4in, sported an excellent broadside, but as they were not completed as a class until about 1911, they were completely overshadowed by the all big-gunned ships then coming into service in foreign navies (British *Neptune* ten 12in; German *Helgoland* twelve 12in). The *Danton* class were designed with a view to combining penetration and saturation fire at modern battle ranges, and their claim to be a good design lay in that concept. Some disappointment was felt, however, when the gun trials of *Condorcet* showed that she had failed to come up to her stipulated rate of fire.



49 ▲ 50 ▼

50. *Condorcet*, c., 1918, showing revised rig. Typically French in appearance, and like no others in the fleet, with their five funnels, three forward and two aft – all with tall caps on top. Note the round 9.4in turrets, which, according to reports, were very cramped internally; the high freeboard throughout; straight stepped boat cranes; and 75mm gun ports. Also, note the unequal size of the funnels.





▲ 51

51. *Diderot* raising steam in Valletta Harbour, Malta, c., 1912–13. Very hard to tell apart, and when funnel bands were introduced it became even more confusing as these were subject

▼ 52

to many changes. *Danton* was seen with one white band on the fourth funnel, and then on third; *Diderot* two white on third, and then one white on third; *Vergniaud* one white on

second then two on second and so on.

52. *Danton* All saw service in the war and were based in the Mediterranean until 1916. *Mirabeau* was in the Black Sea

during the Russian Civil War, but later ran aground off the Crimean coast and stuck fast. Later she was pulled off after the removal of some of her 12in guns and armour plating and





53 ▲

towed back to Toulon. She never sailed in service again and ended up as a target after the war. During the Second World War the hulk of *Condorcet* saw service as a barracks ship; in fact her hull was not scrapped until as late as 1959—long after 99 per cent of all dreadnoughts had vanished from the oceans.

53. *Danton* at the Fleet Review at Spithead, 1911. During operations in the Mediterranean, *Danton* was torpedoed by *U64* on 19 March 1917 off Sardinia and became the last French capital ship to be lost during the war.

54. *Danton* Three of the ships (*Diderot*, *Voltaire* and *Condorcet*) were refitted after the war (1923–5) when they were given improved underwater protection and updated fire control for experimental purposes. They continued to serve the French Navy until as late as 1936.

55. *Voltaire*, c., 1911. *Voltaire* stood up well after being torpedoed in 1918 and managed to make her way back to port under her own steam. This feat puts the class in good company because other more suitably armoured vessels did not withstand the attack of modern torpedoes that well.



54 ▲ 55 ▼





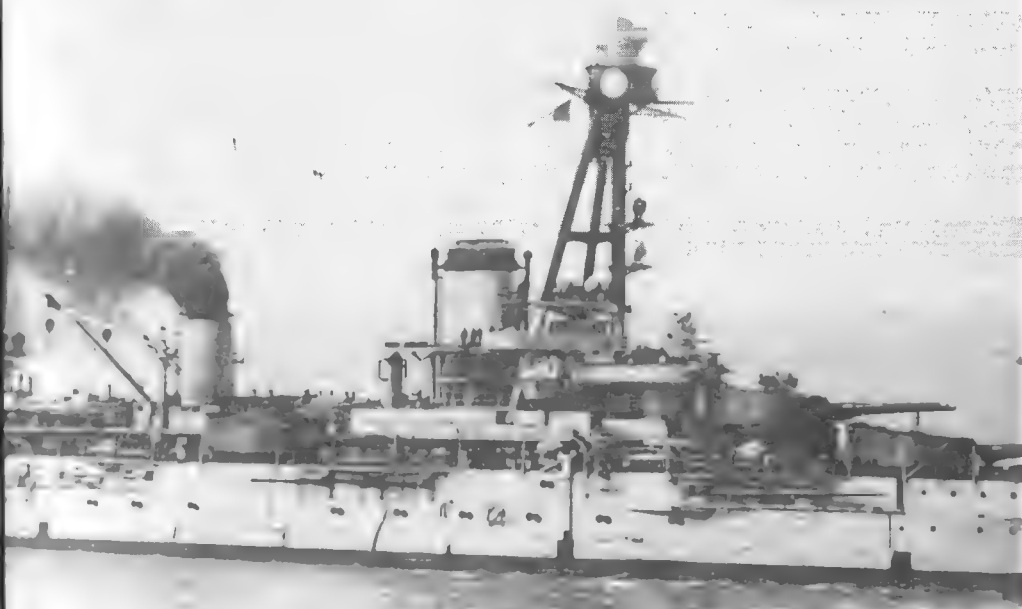
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56. *Courbet*, 1919–20. The *Courbet* class brought the French Navy into the dreadnought era at last. The design of the four ships was a long-drawn-out process, because although the Ministry of Marine wanted new ships desperately, and had initially provided a programme in 1906, which would furnish the fleet with sixteen battleships by 1919, they were extremely hesitant over the final layout, and were content to watch the arms race develop between Britain and Germany. The original idea had been simply to enlarge the *Danton* design, but the layout would not allow for the mounting of all big guns. During this period, many sketch designs were put forward, but it was not until 1909–10 that a suitable layout was accepted.



▲ 57 ▼ 58

57. *Jean Bart*, c., 1924. The approved design was a mixture of French and foreign qualities. The big gun layout resembled that of the British designed *Sao Paulo*, except that the midships turrets were not *en echelon*, but placed in the same position port and starboard. The secondary armament (5.5in) although numerous in number, were badly placed and were both cramped and liable to blast interference from one another. The guns themselves were also positioned in such a manner that they would suffer when the main guns were fired on the broadside.



58. *Courbet*, c., 1936. For a first attempt at a dreadnought the outcome justified the requirements that the French designers had envisaged. In practice, however, it was realized that too much had been attempted in one design and they proved unsuitable in many ways. One of the main faults lay in the reduction of forecastle length which, coupled with the weight of the bow armour plating, made them extremely wet ships forward. Nevertheless, as a class they were adequate for most purposes and were well armed and suitably protected with a speed to equal all but the newest British battleships.



59. *Jean Bart*, July 1928. Under refit from August 1929 to September 1931 when she received many modifications to keep her up to date. New oil-fired boilers, improved gunnery control and minor modifications to the secondary armament were involved. Some of the bow armour was removed in an

attempt to prevent her forecastle from being washed out, and help her sea-keeping qualities. Bridgework was also modified to a certain degree. Note that the main guns and turrets are painted black – a particularly French feature.

60. *Jean Bart* Renamed *Océan*

to release the name for a new battleship in the 1930s, the condition of the ship had deteriorated somewhat during this period. Consequently she was converted to a training ship and some of her armament was removed. The photograph shows her in full fighting trim shortly before being earmarked for TS

purposes. Note the range clock on foretop, the extensive searchlight arrangements in the bridgework, goose neck cranes, and triple rangefinder below the charthouse.

59▲

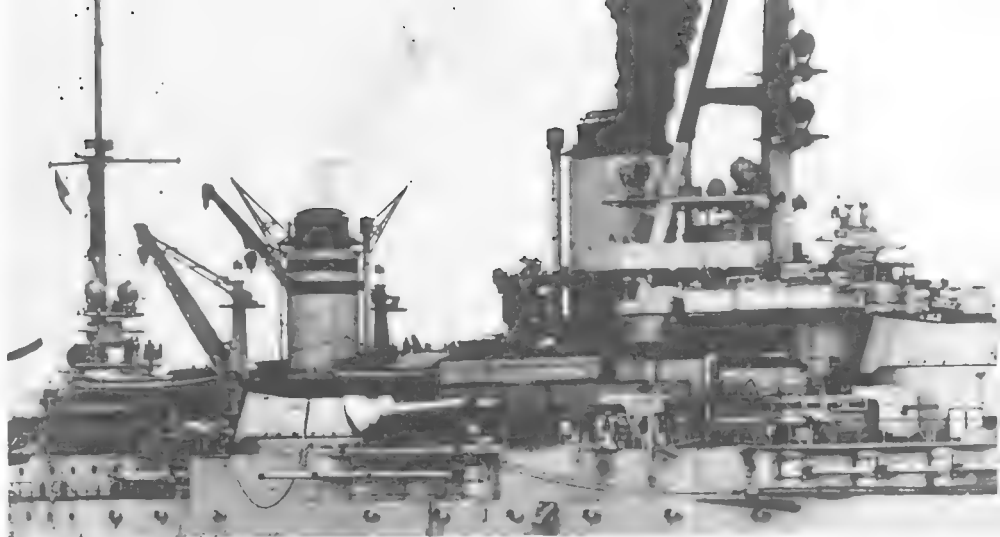
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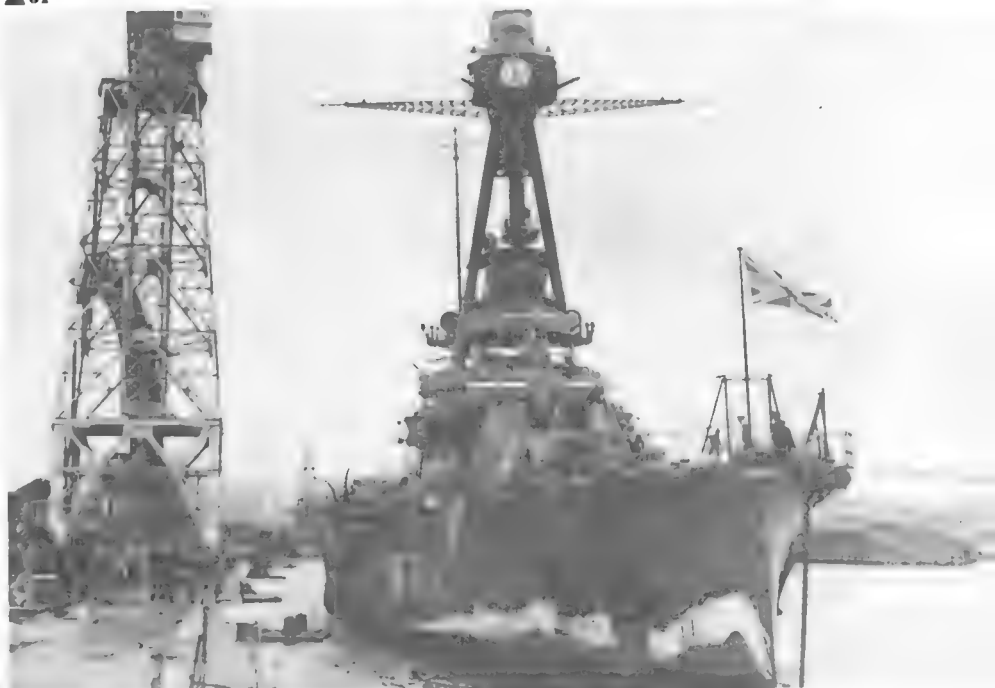
61. *Courbet* at Portsmouth, 1939. They all received different degrees of modification throughout their lives, but the first noticeable item was the introduction of the tripod foremast which was necessary for the stable support of fire control located within the foretop. The mainmast was reduced to a stump derrick and in *Jean Bart* and *Courbet* the forward funnels were trunked, and raised in height. In *Paris*, however, the twin funnel arrangement remained throughout her lifetime. In appearance, there were bridge differences in all, and they could be distinguished by these. A sister ship, *France*, had a relatively short career because she ran aground in Quiberon Bay and stuck fast. Beyond help, she was later scrapped *in situ*.

62. *Paris* at Plymouth, 1940. Entering the Second World War as France's oldest battleships, they were relegated to subsidiary duties. They both fired at the advancing German armies during the opening months, but were later sent to England when France fell. Used by the Free French Forces when the opportunity came, they performed various tasks, but were too old and slow for front line duties.

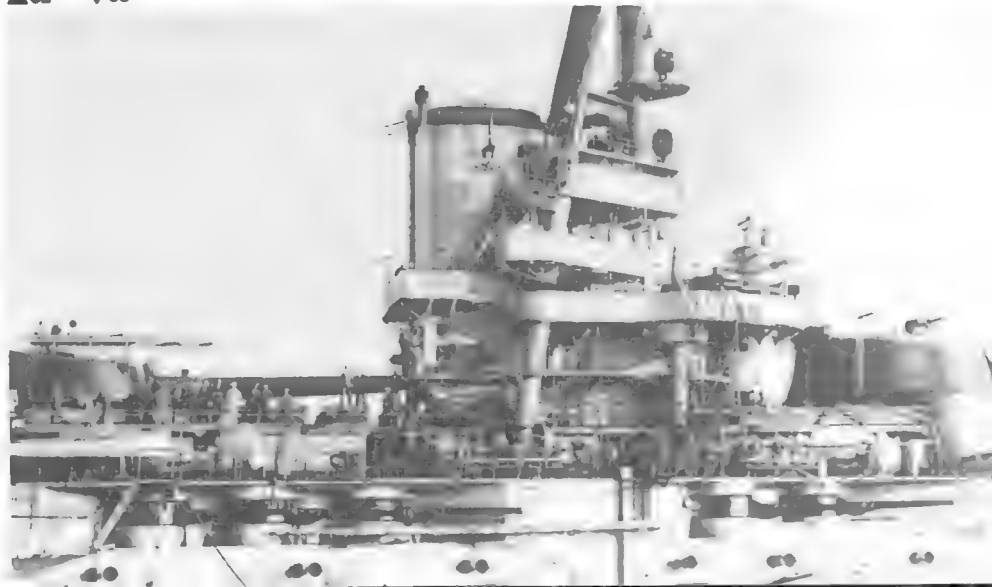
63. *Bretagne* Provided under the 1912 programme to replace the ageing *Charles Martel*, *Carnot* and *Liberté*. To hasten completion, their dimensions and general layout followed that of the *Courbet* group, except for a single turret amidships instead of the double mountings of the latter, and the gun calibre was increased from 12in to 13.4in. As designed they were good ships, but the slow pace of construction, meant that some of their qualities had become outmoded by foreign standards. They were completed with twin pole masts, but later were given supports to the foremast (tripod) to carry improved fire control equipment. The photograph shows her amidships after some modification by 1928.



▲ 61



▲ 62 ▼ 63



64. *Bretagne* Between the wars they were constantly in a state of refit to keep them battleworthy, and although never given the scale of modernization that some foreign contemporaries received, they were still a force to be reckoned with in 1939. Main gunnery ranges were increased by improving the elevation of the gun ports; modified bridgework and boiler house and machinery improvements were also carried out. *Bretagne* is shown here in July 1928. Note the new bridgework, square range clock, huge rangefinder on foretop, tall topmast to main, forward 5.5in guns removed, and large W/T outrigger at top of tripod.

65. *Lorraine* She was used for a rather strange experiment during 1923–4 when she was fitted with a platform suspended from the fore tripod for aircraft launching. The tests, however, were not very successful and the equipment was quickly discarded. During the 1920s they were all very

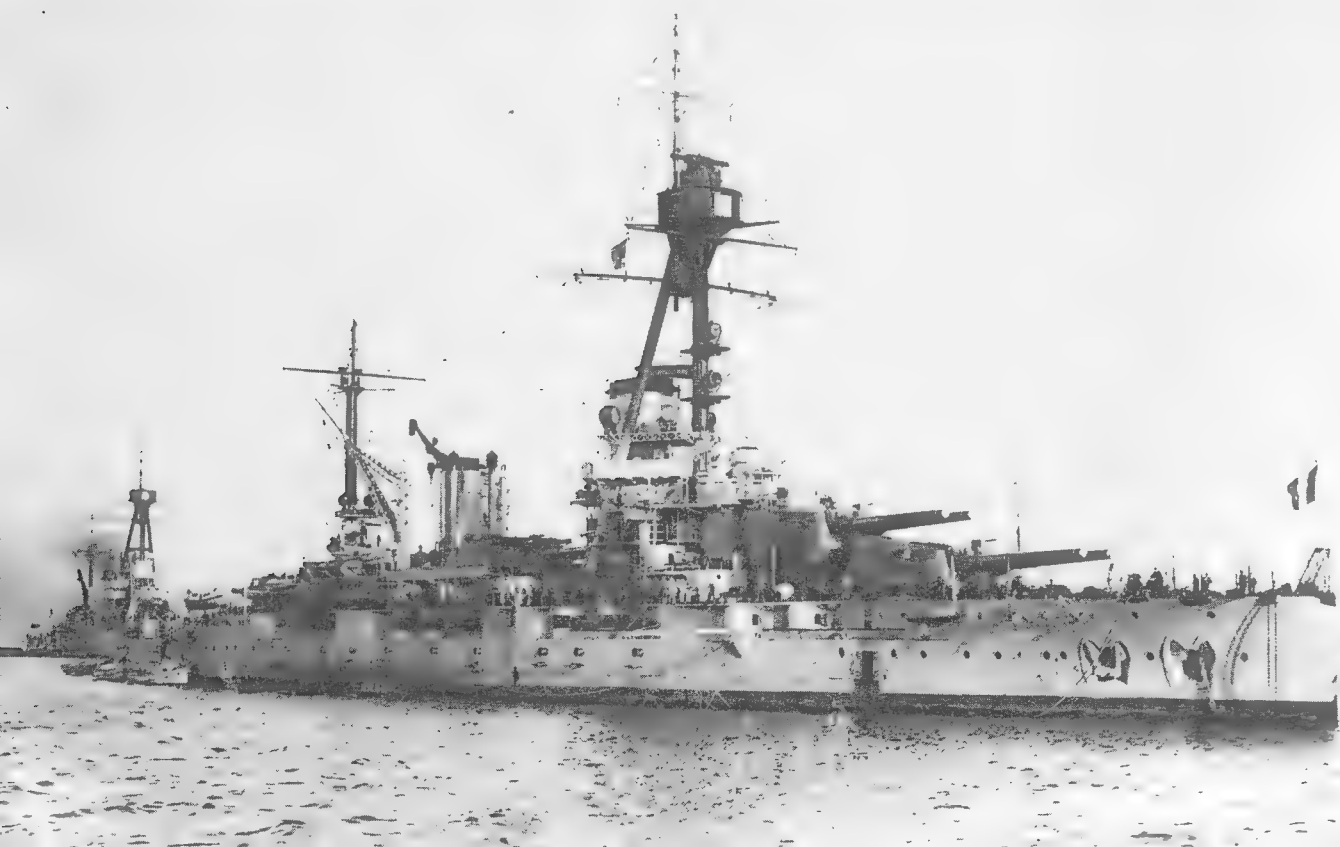
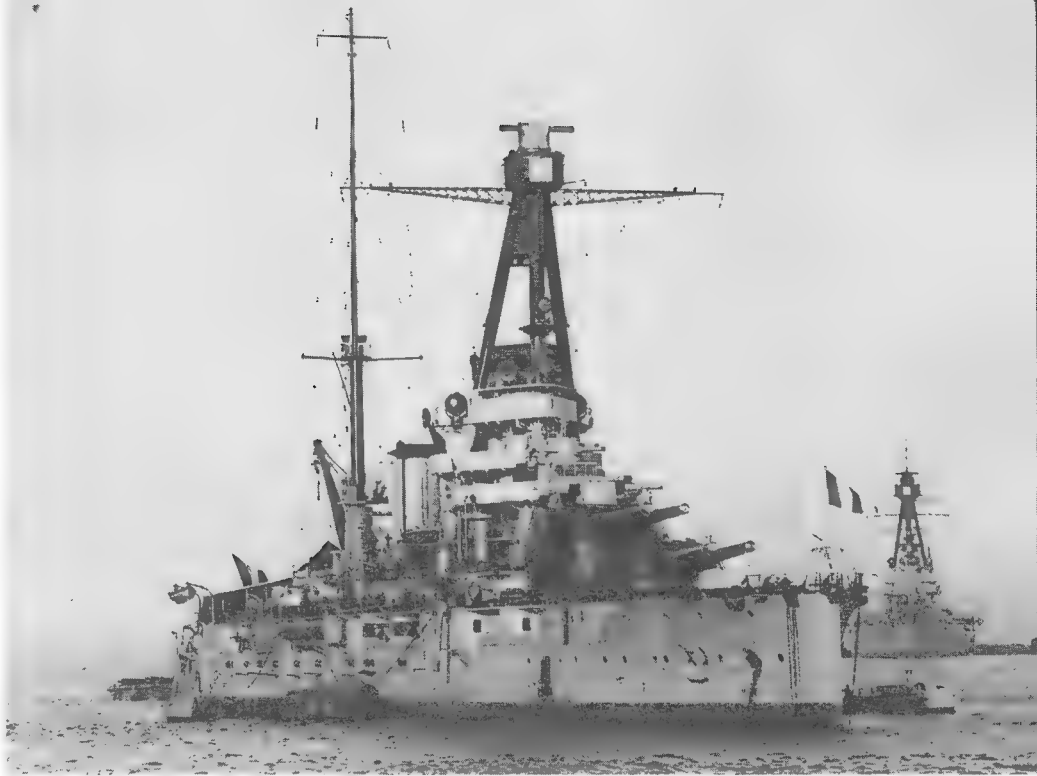
much alike in appearance, but there were enough differences for them to be easily distinguished. The bridgework

was much higher in *Bretagne* than in the other two; no W/T outrigger to *Provence* for a short period; outrigger on

Lorraine was single yard rather than lattice work as in *Bretagne*, and all were different around the after funnel.

64 ▲

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▲ 66



▲ 67 ▼ 68



66. Lorraine She was extensively reconstructed from August 1934 to January 1936 and emerged very different in appearance from her sisters. Her machinery was overhauled, centreline midships 13.4in guns and turret were removed and replaced by an aircraft hangar and catapult. The after funnel was moved back slightly and the fore funnel was made into a much slimmer fitting. New longer boat cranes were fitted, SL arrangements were modified and improved and a special outrigger was fitted to the foremast and after funnel. There were also modifications to the armour decks in the magazine areas. Her armament was improved, and she received modern AA guns and related equipment. This photograph shows her amidships during 1936 with emphasis on the aircraft arrangements.

67. Lorraine, starboard broadside, 1936. Note the funnel bands have changed from those seen in the previous view; there are now two bands instead of one. This feature in photographs is not always correct because quite often photographers would add extra funnel bands, or paint them out at the negative stage, and state that it was a sister ship.

68. Lorraine With the exception of *Dunkerque*, *Strasbourg* and *Richelieu*, she was the most modern battleship in the French battlefleet at the outbreak of the Second World War, and as such saw more service than her sisters. She carried gold bullion to the United States on occasions before serving in the Mediterranean. In July 1940 she was interned by the Royal Navy in Alexandria and later joined the Free French Forces. Took part in the invasion of France in 1944 and bombarded the coastline on many sorties against the German land forces. She received some alterations during the war when the catapult and aircraft were removed and she was fitted with fourteen 40mm, twenty-five 20mm AA guns and an American type of RDF. After

the war she was used as a training ship and served until as late as 1952.

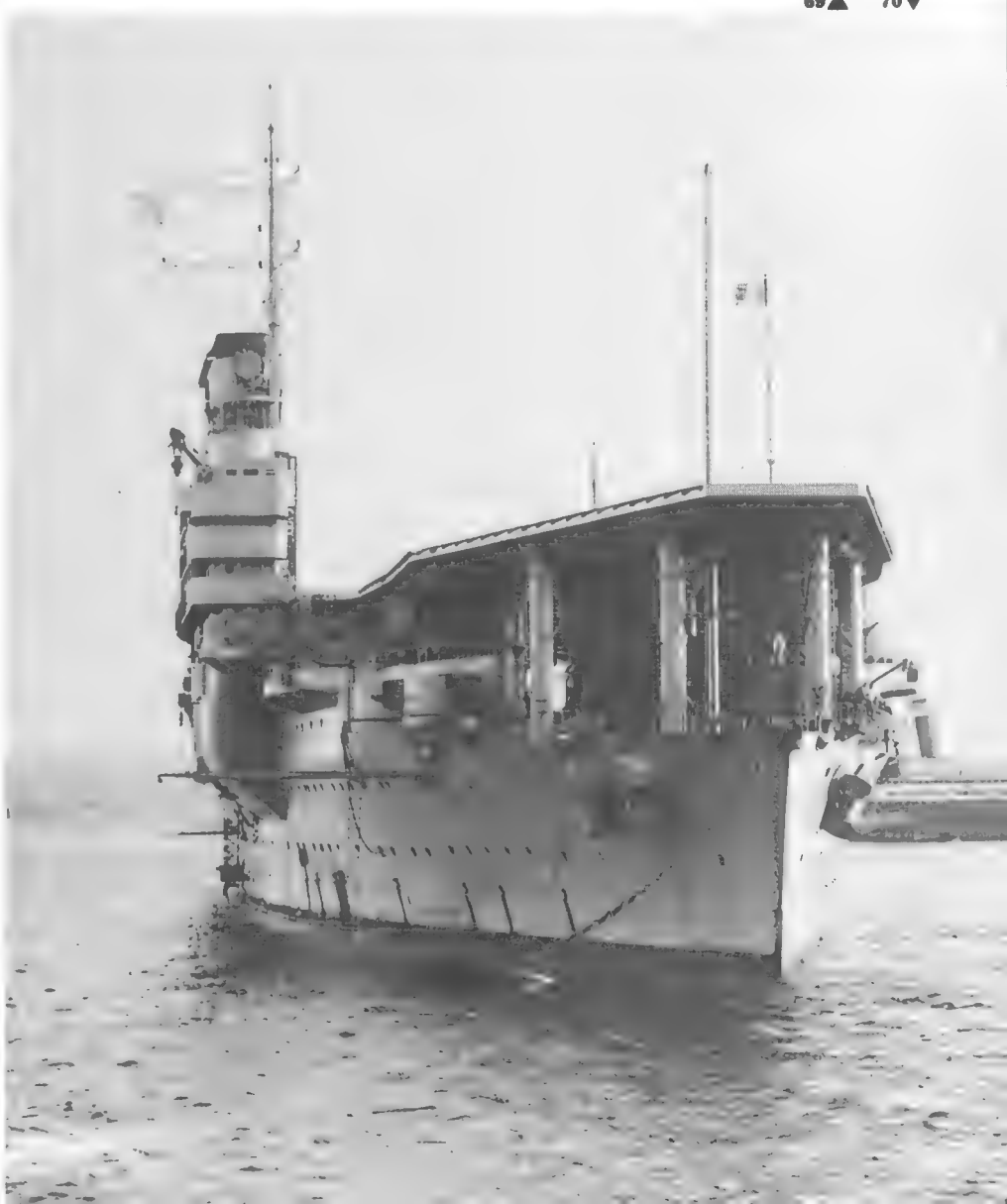
69. *Provence* Having had limited improvements throughout their careers (except *Lorraine*) they were very much of the First World War era, especially regarding protection over the vitals. As a result, they were of limited use but still formed part of the main battle group. When attacked by the British at Mers-el-Kebir in 1940, however, they took severe punishment from 15in shells against which they offered little resistance.

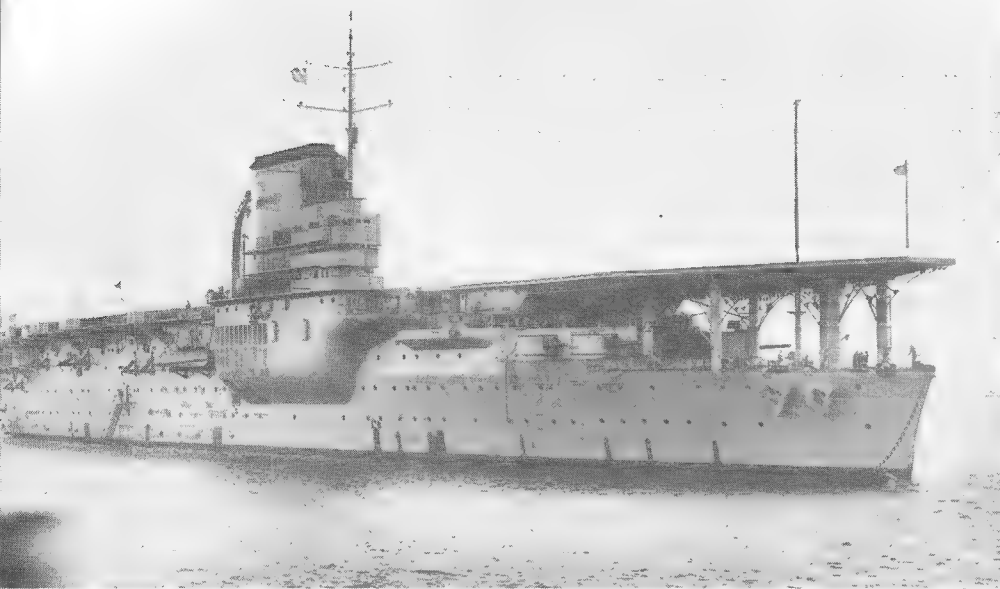
Provence opened fire against *Hood*, *Resolution* and *Barham* to shield the newer *Strasbourg* and draw the British fire. She was mortally hit as a result, and settled in shallow water after being completely wrecked by gunfire. In the same action, *Bretagne* took severe punishment and after internal explosions capsized with the loss of 997 lives (see also *Strasbourg*). The photograph shows *Provence* with guns trained to starboard and shielding *Strasbourg* (behind) so as to allow that ship to escape.



69 ▲ 70 ▼

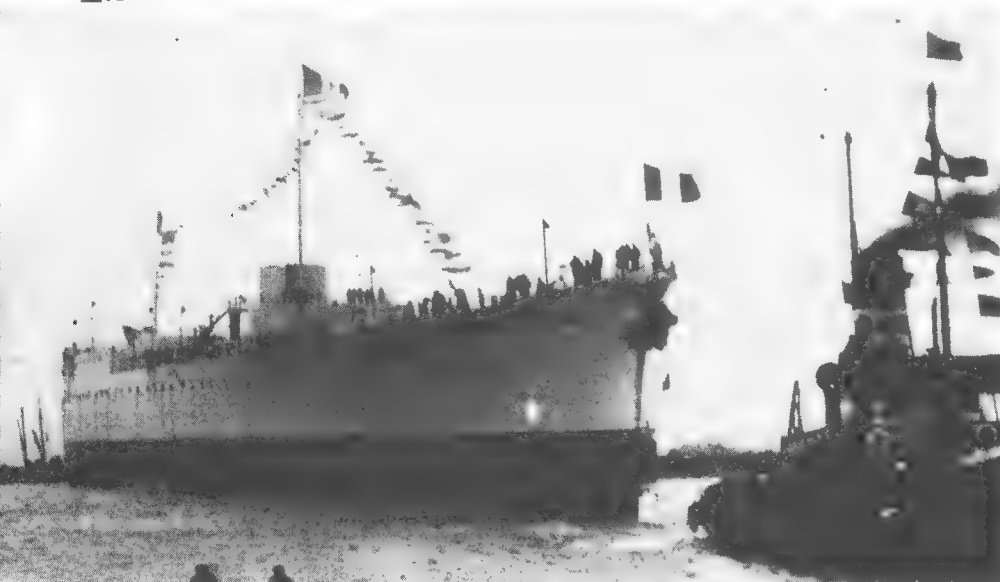
70. *Bearn*, July 1928. Note the high flight deck on the hull. The French Navy did not start experiments with aircraft and warships until about 1920–1, but it was becoming obvious in view of what the Royal Navy was achieving with seaplane carriers and *Furious*, etc., that aviation at sea was most advantageous. In 1913 four battleships of the *Normandie* class were envisaged, and another (*Bearn*) was due in 1914. When war broke out, however, all work on them was suspended, and materials went on the more immediate needs. Later, work on the first four was abandoned, but in 1918 work continued on *Bearn*. In 1920, to further the aircraft idea, she was fitted with a flight deck over the hull for experiments. With much help from the Royal Navy the vessel was fully converted to France's first aircraft-carrier from 1923 to May 1927.





▲ 71

71. *Béarn* in July 1928. Note the funnel arrangement. Like many of the early battleship conversions, she kept her basic hull, but the heavy armoured belt was removed to compensate the topweight of the flight deck. In her new role as aircraft-carrier *Béarn* proved quite successful and served as sole carrier of the French Navy throughout the inter-war years. She served during the second war, but not as a front line carrier, because of her age and slow speed. Her flight deck was reduced in length during a refit in the United States in 1943, and her anti-aircraft armament was augmented. After this, she was redesignated as an AC Transport until the end of the war.



▲ 72 ▼ 73

72. *Strasbourg* was launched on 12 December 1939. A halt to the battleship holiday of the inter-war years came for France when the naval treaties allowed them a tonnage of 70,000 tons from 1927 to 1935 respectively. Many designs had been prepared during the lull of the 1920s, but the final layout was very much based on that of the British *Nelson* and *Rodney*, completed in 1928. A detailed study was made of the British ships and France was given access to British files. The armament was grouped together forward, a high freeboard extended the extreme length of the ship, and the secondary guns were in turrets. Another similarity was that the armour belt was sloped and placed inboard of the hull proper.



73. *Strasbourg*, 1938–9. She was the first of the class to appear in *Jane's Fighting Ships*, and the world got its first view of the new ships. The most notable features were the quadruple 13in guns; the huge tower which housed all the control systems; and the extraordinary height between the forecastle and upper decks amidships. *Dunkerque* and *Strasbourg* were the best ships France had ever produced, but the scale of armouring (8¾in) in *Dunkerque* left much to be desired. *Strasbourg*, however,

had been fitted with a belt of 11¼in which was more in line with contemporary battleships of other navies.

74. Dunkerque As completed, they outclassed the German *Deutschland* trio, which they had been built to counter; in fact *Strasbourg* approached parity with the later German *Scharnhorst* pair completed in 1938–9. The photograph shows *Dunkerque* amidships when she was present at the Coronation Fleet Review at Spithead in May 1937. Note the high freeboard, secondary gun and SL arrangement, aerial spreaders on bridge face and rear, rangefinders on top, high flying deck aft and conspicuous funnel cap. To distinguish the pair was easy because *Strasbourg* was given a much larger funnel cap, than her sister, and there were bridge differences.

75. Dunkerque Coronation Fleet Review, May 1937. They were splendid ships on such a

small displacement (26,500 tons as designed) and at the outbreak of war in 1939 were France's most powerful

battleships, although they were to lead relatively short lives. *Dunkerque* searched in vain for *Scharnhorst* and *Gneisenau*

during the early months of the war before going to the Mediterranean in April 1940.

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▲ 76



▲ 77 ▼ 78



76. *Strasbourg* in full fighting condition, c., 1939. The 13in guns, although in quad mountings, were not positioned as in the British *Nelson*'s triple guns or the quad mountings of the *King George V* class, but were separated in pairs within the turret. This enabled fire to be localized, elevation arrangements to be easier and internal layout much simpler. The argument, however, was that if one gun mechanism were ruptured it would affect the other and fifty per cent of the main armament would be lost.

77. *Strasbourg* scuttled at Toulon. *Strasbourg* and *Dunkerque* were at Mers-el-Kebir on 3 July 1940 when the British Fleet approached with the intention of opening fire. A letter was sent to Admiral Genoul directing him to either: sail with the British Fleet under Royal Navy control to a British port; join the British and continue to fight; sail under British control to British or French ports in the West Indies and be disarmed. These options were rejected and action commenced. *Bretagne* was sunk, *Provence* was badly damaged beyond immediate repair and *Dunkerque* was seriously damaged when a bomber from *Ark Royal* hit a small ship alongside which was carrying depth-charges and exploded tearing a great hole in *Dunkerque*. She was never restored to full fighting condition. *Strasbourg*, however, managed to escape to fight

another day. Her success was short-lived though, because she was scuttled alongside *Dunkerque* and others at Toulon in 1942.

78. *Richelieu* in American waters, February 1943. The initial design had been prepared in 1934 and a pair of battleships laid down in 1935 after more negotiations about naval treaties with Great Britain, and after it was realized that Germany, Italy and Japan were going their own way regarding tonnage. With a close eye on Germany and their three 'pocket battleships' plus the very powerful *Scharnhorst* and *Gneisenau*, the French were able to produce the most powerful warships by following the same lines as *Dunkerque*, but introducing more armour protection and larger guns for the main armament. As completed, they were the largest, fastest, best armed and armoured battleships France ever built and were a match for any of the foreign battleships built during the Second World War – with the possible exception of the Japanese *Yamato* class of 1941.

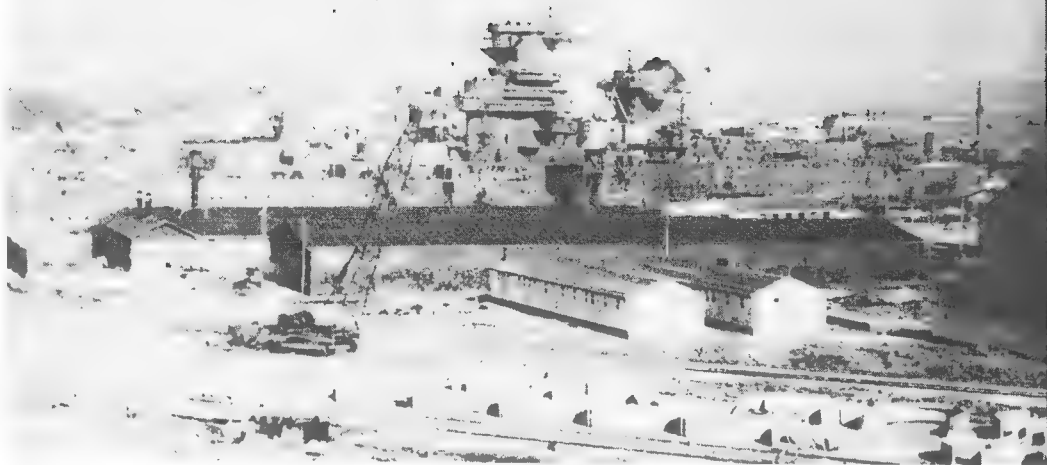
79. *Jean Bart* On trials *Richelieu* proved an excellent vessel and little could be said

against the design for a 1940 battleship. One possible criticism, however, was that the secondary armament was insufficiently protected in armour thickness, but this could also be said for almost all other battleships of the period, regardless of nationality. *Richelieu* was completed almost nine years before *Jean Bart*, resulting in many minor differences between them. *Jean*

Bart benefited from war experience when she was refitted in 1949 and was completed with modified AA armament and improved underwater protection.

80. *Richelieu*, 8 February 1944. Originally designed to carry fifteen 6in guns in five turrets, *Richelieu* was completed with only nine 6in plus twelve 4in as the demand for lighter, quicker-firing weapons to

combat the ever-growing menace of aircraft became necessary. *Richelieu* was easily a match for the Italian battleship *Littorio* (35,000 tons, 9×15in guns) for which the French ship had been designed to counter in the coming war. The photograph shows *Richelieu* seen from the air. Note the unorthodox layout and strange funnel design. Also, the early camouflage patterns.



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81. *Richelieu*, 1944. As originally designed the funnel was to be a separate entity, but during the construction stage it was seen that the merging of the funnel and the superstructure carrying the director towers was possible without much delay – in fact, it made a great saving in weight and valuable space as well as

▼83

keeping the forward part of the ship free from any exhaust fumes. The photograph is a close-up of *Richelieu*'s bridge. Note the 15in rangefinders at turret ends, 15in gun ports with black blast bags, AA guns and saluting gun near 15in turrets.

82. *Richelieu* She completed with hangar and aircraft



▲82

facilities like most modern battleships of the period, but when she received her refit in the USA in 1943 most of the equipment was removed as any aircraft operations had been transferred to the proper carriers. The space was taken up with 40mm and 20mm AA guns. *Jean Bart* completed with this aircraft facility, but it was

never used as such. The photograph shows *Richelieu* in 1946, but she still has her Pacific camouflage. Note the extensive RDF aerials.

83. *Jean Bart* in 1952. Note differences from *Richelieu*. She had the honour of being the last battleship in the world to be completed. Leaving France to escape the advancing German armies (while still under construction) she managed to reach Casablanca in a very incomplete state. On 8 December 1942 she was attacked by US forces and seriously damaged by 16in shells fired from USS *Massachusetts* and also sustained damage from attacking aircraft. In 1945 it seemed that she might be scrapped, but a strong body of opinion in official circles, as well as a vociferous French public saved her, and she was completed as late as 1949 when the age of the battleship was drawing to a close.





84. *Richelieu* in 1951, in her final guise. Note the uneven hull lines. She began her career by being attacked by British aircraft as she tried to work up off Dakar in July 1940 and was in fact hit by a torpedo from old Swordfish aircraft from

HMS Hermes on the 8th. She stayed in the port at Dakar until November 1942. After negotiations with the Allies she sailed for the USA and repairs in 1943 and underwent a rather large refit there.

85. *Richelieu* at Villefranche, 1952. Having received refits during the war she made full use of her war experience and by 1945 was one of the best capital ships in Europe. Her radar was originally a Sadir M.E. 140 type, but was updated

in 1943 when in the USA. By 1945 her sets were quite advanced and she was equipped with American SG1, SF, British 281 and 285 plus French DRBC10A for the main armament.

84▲

85▼



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